The Journal of Obstetrics and Gynæcology of the British Empire

Vol. V. APRIL, 1904. No. 4.

Two Cases of Abdominal Hysterectomy for Fibroids Complicated by Pregnancy.*

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Case I. Mrs. P., age 42, was admitted to the New Hospital for Women, January 28th, 1902. Her history in brief was as follows: Married 4 years; no children; one supposed early miscarriage in May, 1901. Before, and since, the periods had been regular and profuse, with rather less than 3 weeks' interval until October 18th, 1901; from that time amenorrhœa. Up to 6 years ago she had suffered from dysmenorrhœa, but that symptom had declined. For some months she had had a sense of pressure in the rectum and some irritability of the bladder. She was sent into the Hospital for an opinion as to treatment by Miss Aldrich-Blake, M.S., under whose care she had been for the previous 6 months. Miss Aldrich-Blake first saw her after the supposed miscarriage, when the patient was losing freely, and noted then the presence of a couple of fibroids in front, and one, pedunculated, occupying Douglas's pouch and retroverting the uterus. She noted a faint systolic murmur at the cardiac apex but no albuminuria. She had suggested myomectomy owing to the trouble experienced from pressure on the rectum and bladder. This the patient declined. In January, 1902, she found her $2\frac{1}{2}$ months pregnant, and the pelvic fibroid, as well as the whole mass of the uterus, markedly increased in size. She then recommended her to come into Hospital for consultation as to treatment. The patient's friends, wishing for an independent opinion, took her to see Dr. Amand Routh, who kindly

*Read at a meeting of the Obstetrical Society, March 2nd, 1904.

wrote to Miss Aldrich-Blake his opinion of the case, which was, that she was certainly pregnant, and that an attempt should be made to push up the fibroid. Should that fail, he thought Cæsarean section at term might be necessary.

On admission. The abdomen was prominent, and the lower part occupied by a tumour reaching on the left side up to the umbilicus, and on the right side out into the iliac fossa, irregular and bossy on the surface. Consistence on the left semi-cystic and elastic, while the bosses and portion in the right iliac fossa were hard. The left round ligament could be traced on to the main tumour, the right round ligament could be felt crossing the tumour in the right iliac fossa.

The cervix was thrust to the front and high up by a hard tumour almost filling the pelvis. Under anæsthesia this tumour was pushed up out of the pelvis to within 4 fingers' breadths of the umbilicus and a ring pessary inserted. The patient was told to adopt the knee-elbow position frequently. It was hoped that as the uterus increased in size the tumour would be drawn up out of the pelvis and that spontaneous delivery might be possible. The prospect of Cæsarean section with removal of the fibroid uterus at term, should reduction not occur, was explained to the patient, who agreed to keep herself under Miss Aldrich-Blake's observation.

Even before leaving Hospital, the tumour tended to return into the pelvis, and Miss Aldrich-Blake reported from time to time that the position of the tumour was not satisfactory in spite of regular increase in the size of the uterus. The patient was re-admitted on June 30th, 1902, three weeks before labour was due. General condition good, some signs of venous congestion about the face and legs, which had occasionally been swollen. Pulse good. Systolic murmur at base of heart and cardiac area increased. Trace of albumen in the urine. The uterus filled the abdomen, and the head was found presenting, lying centrally above the pubes. The boggy mass of the placenta was felt to the left and fœtal parts on the right.

Per vaginam the softened cervix lay centrally, and less anterior in position than on the previous occasion; behind it, in Douglas's pouch was a flattened firm tumour, very distinctly tender. The head lay entirely above the brim and could not in any way be pressed into it, owing to the presence of the tumour. In consultation with Mrs. Scharlieb and Miss Aldrich-Blake the advisability and possibility of pushing up the tumour were discussed and tried, care being taken not to use undue force, owing to the tenderness. These efforts were quite unsuccessful. It was thought that some inflamma-

tory change had taken place in the tumour, and that forcible attempts at reposition might lead to serious injury or rupture of a softened portion. With this danger in view, Cæsarean section was decided on as involving less risk.

At the operation on July 19th the child was delivered alive by central incision of the uterus in the usual way, no amniotic fluid escaping into the peritoneal cavity. The uterus was then at once drawn outside the abdomen, and the placental edge was seen to bulge out at the left side of the incision, which had only just missed it. No attempt was made to separate it, but the uterine walls were well squeezed together; they contracted down on the placenta and no bleeding occurred. The main tumour was found to be a pedunculated fibroid of the posterior wall, the size of a large Jaffa orange, adherent to the lateral and posterior walls of the true pelvis. Close to it was a second fibroid the size of a large walnut, and the uterus was beset throughout with smaller fibroid nodules. Consequently, all thought of myomectomy was abandoned, and the uterus, containing the placenta, with the fibroids was removed by the ordinary supra-vaginal amputation. A small piece of membrane occupying the cervix was dissected away, the cervical canal was disinfected with pure carbolic acid and closed in by suture, the cervix was dropped, and the peritoneum was closed over it with catgut suture. Both ovaries were left. The child, a male, was well-formed and weighed 9 lbs.

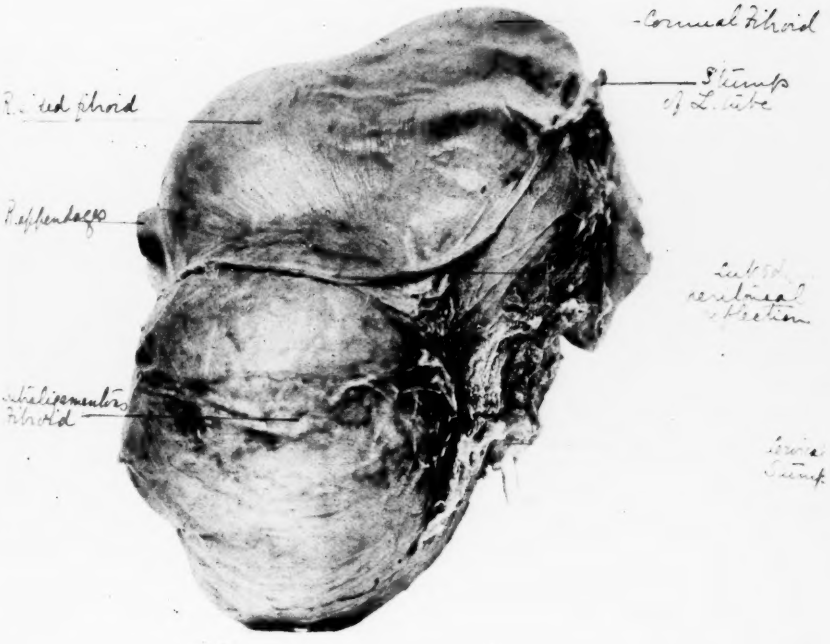
The pulse immediately after operation was 102 and rather feeble, but the patient rallied and did fairly well for the first two days, giving no real ground for anxiety, although the pulse remained over 100 and feeble, and there was a good deal of sickness for the first 12 hours. On the morning of the 21st, 48 hours after operation, the pulse failed markedly, and ran up from 130 to 160 and the patient complained of breathlessness. By noon the abdomen was much distended though moving well on respiration, the pulse feeble and irregular. Examination of the wound showed healing. A few stitches were removed and the peritoneal cavity opened, when a little clear orange-coloured fluid welled up; a rubber drainage tube was passed into the pelvis. There was no improvement in pulse or respiration after this, and there was still complaint of pain and discomfort at the chest; she died the same evening, 58 hours after operation.

The *post-mortem* was unsatisfactory and inconclusive. There was no general peritonitis, but where the tumour was originally adherent a patch of localized peritonitis existed in the pelvis, and here a collapsed coil of small bowel was adherent. The lines of peritoneal suture were healthy. There was hardly any fluid in the pelvis, but

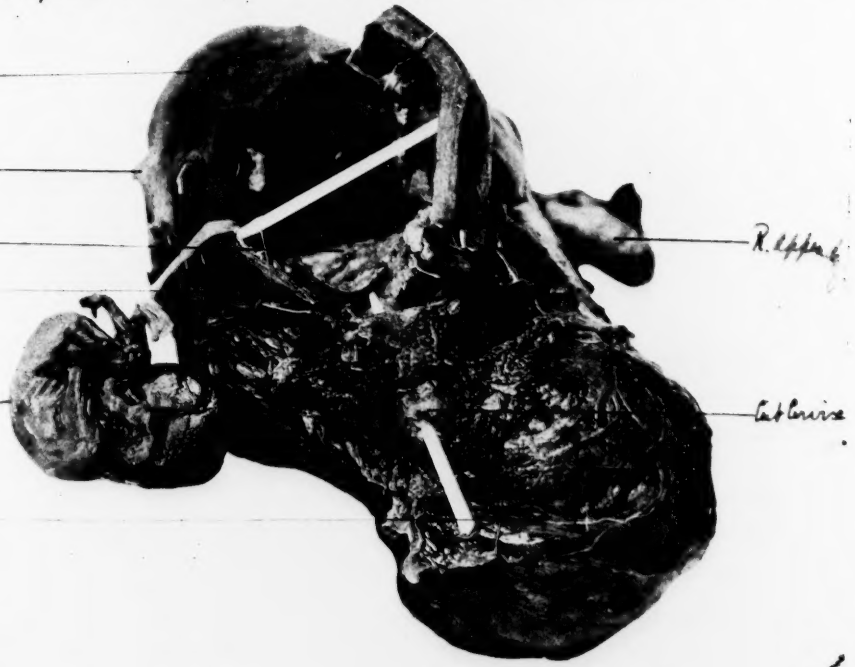
cultures from it and from the blood proved sterile. There was nothing special in the heart or lungs to account for death, though both pleuræ contained a small amount of blood-stained serum. What was the cause of death? Sepsis is always the first thing in one's mind in such a case, and it was that suspicion on the third day that led me to establish drainage of the peritoneum, but the absence of general peritonitis and the result of the cultures negatived this. There was marked distension of intestine, due probably to the adherence of a coil in the pelvis, and I am inclined to think that this so hampered a feebly acting heart as to turn the scale against the patient. If so, she died indirectly as a result of the injury to the tumour from long continued pressure during the later months of pregnancy. I note that in one of the cases reported by Dr. Amand Routh to the British Medical Association Meeting at Swansea adhesions were present, but the patient made a good recovery, and Hofmeier refers to two cases of Porro-Cæsarean section at term for adherent fibroids (one his own, one Schröder's) which both recovered well. Probably in my case there was some special weakness of the heart muscle leading to dilatation, as shown by physical signs before operation, and this may have been the determining factor in the fatal issue. I am inclined to think that earlier operation (in this case myomectomy) would have given the mother a better chance, and the child at least a fair one. Since this paper was written, such a case has been reported by Dr. Maclaren in the *British Medical Journal* of January 9th. I should be very glad to hear the views of other Fellows as to the cause of death in this case. It is the only death I have myself had in 31 abdominal hysterectomies for fibroids, and I do not remember to have seen an exactly similar case. Hofmeier, writing in the *Zeits. für Geburts. und Gynäkol.*, in 1894, mentions a case of death from sudden heart failure 17 days after delivery in a case of pregnancy complicated by fibroids, and notes that during the whole period of labour and of the puerperium there had been a very small and frequent pulse without other symptoms. This he thought might have been due to heart changes connected with the presence of fibroids.

The specimen, which has shrunk considerably in preservation, shows a pedunculated fibroid springing from the posterior wall of the uterus low down, flattened by pressure and rough and irregular from tags of adhesions. The right half of the anterior wall has been cut away to show the placenta *in situ*. It is attached to the left anterior and lateral aspects of the uterus. The wall of the uterus is of about normal thickness at term, and is beset with numerous small fibroids.

Anterior view of Specimen 11



Posterior view of specimen II A Glessrod is passed through the cervical canal into the uterine cavity. The posterior wall of the uterus is laid open to show the cavity with the placenta attached to the floor.



Case II. Miss P., giving her age as 29, consulted me first in January, 1901, for a lump in the abdomen and menorrhagia. Under an anæsthetic, the uterus was found to lie retroverted between two fibroids, one sessile at the anterior aspect of the left cornu, the size of a small apple, while on the right side was felt another fibroid, the size of a Jaffa orange, which, though occupying the right and posterior aspects of the pelvis could be pushed up out of it and the uterus restored to anteversion.

Under treatment (ergot, hamamelis and bromides) the periods lessened and the uterus remained in anteversion. A year later menorrhagia recurred; there was some increase in the right-sided tumour, and the whole uterus was higher, giving reason to think that with further increase the whole mass would rise out of the pelvis and grow towards the abdomen. She consulted me about marriage. I thought that with severe menorrhagia and a growing tumour at the age of 29, operation would ultimately become necessary, while the dangers attending pregnancy would be great. Neither she nor her intended husband would give up the engagement. Consequently, following the lines indicated by Dr. Cullingworth in his paper "On fibroids complicating pregnancy" (*St. Thomas'sHospital Reports*, 1899, p. 395), I advised operation before marriage with a view to myomectomy or possibly hysterectomy, but I placed before her the alternative, in case of pregnancy occurring, of Cæsarean section and hysterectomy or myomectomy at term. She chose marriage with the attendant risks, chiefly because she was really 10 years older than she told me, viz. 40, and she thought that pregnancy was out of the question.

Eighteen months later she was sent to me again by Dr. Lydia Leney, being, as she thought, 3 months pregnant. She was married in July, 1902, and the last period was March 21st—28th, 1903. There was marked irritability of the bladder and constipation, but her condition was otherwise good, for the menorrhagia had lessened after her marriage. A mass was found in the abdomen reaching to two fingers' breadth above the umbilicus and out to the line of the anterior superior spine on the left side. To the right of the umbilicus and two fingers' breadth below was a second rounded mass, the size of half an orange, below which the hand could be well pressed in.

The cervix lay far back and much displaced to the left by a third rounded firm mass occupying the right and anterior fornices; the upper limit of this mass could be felt bimanually above Poupart's ligament and below the upper right-sided tumour. All the tumours were fairly soft, but where they met in the hypogastrium was a

softer and more elastic portion taken to indicate the position of the pregnant body of the uterus. Five weeks later the whole abdomen was more prominent, though the tumour was not higher—a condition evidently due to posterior development of the pregnant fundus, the anterior wall being blocked by fibroids. It was impossible to push the pelvic mass up out of the pelvis. I thought it was intra-ligamentous and would prove an absolute obstacle to spontaneous delivery. The question was one of operation now or at term. It was doubtful whether there was room for a living child to develop, and there was danger of injury to the growing pelvic fibroid from impaction. Under these circumstances I thought that a hysterectomy at the fourth month involved less risk to the mother than a Porro-Cæsarean at term. (In this opinion I was no doubt influenced by the fatal issue in the previous case.) The question of least risk to the mother was pressed upon me very strongly by the husband, and seeing that this would involve the sacrifice of the child, I induced her to take a second opinion. She elected, fortunately, to see so eminent an authority as Dr. Cullingworth. He also doubted the possibility of her carrying a living child to term, and agreed that immediate operation involved less risk for the patient herself. Consequently, he suggested an exploratory operation, and recommended that should it prove possible to draw the tumour up out of the pelvis, the case should be allowed to go to term.

At the operation on July 29th, I found the pelvic tumour to be intra-ligamentous and immovable, and decided to remove the uterus by supra-vaginal amputation. The operation was quick and easy, the intra-ligamentous fibroid shelling out without difficulty after incision of the reflection of peritoneum over its upper part. The patient made an excellent recovery.

An examination of the specimen justifies, I think, the treatment adopted. (Figs. 1 and 2.) It shows that spontaneous delivery at term would have been out of the question, owing to the situation and immobility of the lower fibroid; that the uterine cavity is limited and encroached upon by two of the fibroids, the lower one forming the floor of the uterine cavity; that the only portion of uterine wall free from fibroids is the posterior, towards which the fœtal sac is developing, thus giving rise already at the 4th month to marked thinning of this wall. Might this not have gone on to rupture? This is a possible though rare accident which was not alluded to by Dr. Amand Routh in the exhaustive account of the dangers of the complication of pregnancy with fibroids with which he opened the discussion at Swansea. One

such case of rupture at the 4th month with the *post-mortem* specimen was recorded by Dr. Hogan (*American Journal of Obstetrics*, 1893, p. 305) at the 5th annual meeting of the Southern Surgical and Gynæcological Association. More recently, and since this paper was written, Ekstein has published a case of rupture in the course of forcible delivery at term, but the condition of the uterine wall at the seat of rupture is not mentioned (*Monats. für Geburts. und Gynäkol.*, Bd. xviii., Ht. 5).

Finally, the specimen shows a dangerous implantation of the placenta in the lower uterine zone and over the area of an intramural fibroid, so that had the case passed into labour, hæmorrhage must have occurred early, from marginal separation of the placenta as the cervix expanded, and later, from the impossibility of retraction of the placental site. From all these considerations it is evident that operation would ultimately have been necessary on behalf of the mother. What is the probability of a fœtus developing to term and without deformity in such a case?

In this case I operated in contravention of the recognised rule, clearly stated by Landau (amongst others) in his paper on the treatment of this complication in the Volkmannsche Sammlungen (*Gynæcol. Series*, No. 9) and restated by Dr. Amand Routh in the paper above referred to—the rule that no operative interference should be undertaken during pregnancy unless urgent symptoms arise. My patient had certain pressure symptoms, frequency of micturition and obstinate constipation, but they did not in themselves call for operation. The grounds on which I acted were the comparative risk to the mother, and the improbability of a healthy fœtus developing to term. It seems to me, that Landau's statement that the prognosis for the mother is more favourable the later in the course of pregnancy a hystero-myomotomy is undertaken, is a little too sweeping, in view of the possible effects of pressure on the fibroid itself and on the uterus by distension of its cavity. And it is the question of risk for the mother that will frequently, where family is not strongly desired, guide the parents in the choice of operation, however it may be presented to them by the medical attendant. The possibility of development for the fœtus, too, is an important point, for it would be a sorry thing to persuade a patient to wait till term for an operation which the position of the fibroid made inevitable, and go through months of anxiety and hope, only to deliver her in the end of a deformed or macerated fœtus.

Chronic Endometritis and Chronic Metritis in Virgins.*

By Archibald Donald, M.A., M.D., C.M., *Gynæcological Surgeon to the Manchester Royal Infirmary, and Surgeon to St. Mary's Hospital for Women, Manchester.*

It is not an easy matter to find a title which will indicate precisely the subject dealt with in this paper. I wish to limit my remarks to changes in the endometrium and mesometrium which occur apart from the usual infective causes (sepsis, gonorrhœa and syphilis), and also to exclude tubercle, cancer, fibroid tumour and membranous dysmenorrhœa. The title I have chosen is somewhat clumsy and not without objection, but it probably conveys my meaning better than any other. "Idiopathic endometritis and metritis" is shorter, but is open to the objection which always attaches to the adjective. "Benign adenoma" is too limited in its application and involves a theory which all may not be inclined to accept.

Clinical Material. During the last few years, I have been taking notes of cases of so-called endometritis and metritis in virgins, and my observations, which I have recorded in a tabular form, are based upon a fairly large series of cases (40 in all) which I have carefully observed. In selecting the cases, I have rigidly excluded all but those that were absolutely above suspicion, and have only taken those in which the virginal condition was beyond doubt. It is true that the same kind of case is often found in married women who are sterile, but there must always be a doubt in such cases as to previous abortion or gonorrhœa. Further, my list is mainly composed of cases of which my notes have been fairly full, and which I have been able to keep under observation. For this reason most of them are cases in private practice.

Types of Cases. On passing the cases under review, I find that they resolve themselves into three groups. The first group (Cases 1 to 30 inclusive) is by far the largest, and is the one to which I wish to call special attention. It is characterised briefly: (1) by a small cervix; (2) by an acute flexion; (3) by enlargement of the body of the uterus. The cervix in these cases resembles the infantile cervix. It is often so small as

* Read at a meeting of the North of England Obstetrical and Gynæcological Society, 15th January, 1904.

to be with difficulty seized and pulled down with the vulsellum if room has to be left for the passage of a sound. The supravaginal cervix is thin and soft, and the body of the uterus falls forwards or backwards so as to form an acute flexion. I do not divide the cases according to the forward or backward displacement, as I regard this as a mere accident. The small size of the cervix, and the way in which the uterus is doubled on itself, often gives rise to the impression that the organ as a whole is infantile, and if we trust to bimanual examination alone we are quite likely to come to this conclusion. It is only when the uterus is straightened by a vulsellum and a sound is passed, that we find the cavity is larger than normal.

In the second group (Cases 31 to 38 inclusive), the cervix is normally developed, but the body of the uterus is heavy, and there is retroversion, or exaggerated anteversion. In a number of cases the condition found was intermediate between these groups. It is naturally difficult to draw a hard and fast line between them.

The third group (Cases 39 and 40) is characterised by marked erosion and hypertrophy of the cervix, apart from any change in the condition of the body of the uterus.

Symptoms. The symptoms which I found in these cases may be classified according to their frequency. (1) *Pain or dragging sensation in one or both iliac regions* or *pain generally in the lower part of the abdomen.* I find this symptom recorded in 35 out of the 40 cases. Some of the patients complained of a feeling of discomfort, while in other cases there was distinct dragging or aching. In one case the patient had been operated on for appendicitis without any effect on the pain. Pain in the iliac region in my experience is very characteristic of forward or backward displacement of a heavy uterus, and too little attention has been directed to it. Pain or discomfort in that region is often referred to the ovary, but I believe it is much more commonly uterine in origin. It is probably due to the dragging exercised on the broad and round ligaments by the displaced fundus of the uterus. (2) *Dysmenorrhœa* was almost as frequent as the iliac pain. It was noted in 33 out of 40 cases. It was often very acute, and in most cases had been present in a greater or less degree from the time of the first menstruation. (3) *Leucorrhœa* was noted in 32 out of 40 cases; it was sometimes slight, but in other cases formed the chief complaint. (4) *Menorrhagia and Metrorrhagia* were noted in 16 out of 40 cases. (5) *Remote symptoms,* such as headache, bladder troubles, difficulty in walking, sickness and nervous symptoms generally were present in a small proportion of the cases.

Pathology.—My observations as regards the pathology of the condition have been limited to careful examination under anæsthesia (bimanual and sound) and to the examination, naked eye and microscopic, of tissue removed by the curette.

In a large proportion of the cases the uterine mucosa was much thickened. It came away in long thick strips of pale soft tissue. These strips sometimes measured an inch or more in length, one quarter of an inch in width, and an eighth of an inch in thickness. The cavity of the uterus was nearly always enlarged, the increase in size varying from a quarter to one and a half inches. The microscopic appearances will be described more fully by Dr. Fothergill, but we may mention that great increase of glands was generally found, but sometimes the inter-glandular tissue was increased. In some cases the mucosa was not much hypertrophied, but the uterine wall as a whole was thickened. In the majority of cases, therefore, we had to deal with a change in the uterine mucous membrane, accompanied by a thickening in the mesometrium. In a few instances the change seemed to be in the mesometrium alone.

Etiology. In passing from actual facts to theoretical considerations, the main problem which calls for solution is the correlation of the points observed in most of the cases, viz.: (1) the infantile cervix, (2) the uterine displacement, (3) the enlargement of the body of the uterus, and (4) the hypertrophy of the glandular lining. Much has to be worked out, but certain statements may be offered for consideration. We can understand that given a glandular hypertrophy, muscular hypertrophy will follow, according to the rules which govern the behaviour of all hollow muscular organs. It will also be admitted that an increase in the size of the uterus will favour the occurrence of displacements, and if the increased weight is in the body of the uterus, while the cervix is undeveloped, acute flexion will follow. The first stage in this process presents no unusual difficulty. It is quite as easy to understand why a young woman should have, without obvious cause, a glandular hypertrophy of the uterine mucosa as why she should have it in the glandular tissue of the tonsil, or in the post-nasal mucous membrane, or in the breast. It is simply an overgrowth of cells—a benign adenoma. The crux of the whole position is to account for the infantile condition of the cervix and lower uterine segment. It is possible that the insufficient development of the cervix and the stenosis of the external or the internal os causes retention of secretion, and by an irritative process sets up catarrhal change. It is easy to understand how the double condition

of hypertrophied mucous membrane and narrow canal may cause hypertrophy of the mesometrium.

I have been unable to find any work on this subject of recent date, except that contained in the *Archiv für Gynäkol.* (Vol. lxvi., part 1, and Vol. lxx., part 2) by Theilhaber, Meier, and Lorentz. The theory advanced in these papers is that so-called chronic metritis is characterised by decrease of uterine muscle with increase of fibrous tissue, and of blood-vessels. Most of the investigations in these papers have nothing to do with the class of cases which we are at present considering. In Lorentz's paper nine cases are given. All of them were married women; seven of them had frequent confinements or miscarriages, and of the other two, one had been three times curetted before she came under observation, and the other one had a fibroid of the uterus. In his earlier paper, Theilhaber refers to cases of hæmorrhage and leucorrhœa occurring in young unmarried women. He attributes this to deficient muscular and excessive vascular development in the uterus, but his statements are not sufficiently supported by evidence derived from pathological investigation. Further, he attributes the early development of the blood vessels to masturbation, and he believes that rich diet, luxuriant habits, and over-indulgence in coffee, tea, and alcohol act as predisposing causes. So far as my observations have gone I find nothing to suggest the practice of masturbation in any of the cases.

Diagnosis. The diagnosis in these cases is generally settled by vaginal examination, but in some cases, as has already been stated, it is necessary to make a more thorough examination under an anæsthetic. This raises the whole question of vaginal examination in young unmarried women. It is not necessary to go into this subject here. As a rule, in the cases we are considering the dysmenorrhœa is so acute, or the symptoms so marked that the patient herself, and her friends, are anxious to have the matter fully investigated, and the medical man has no difficulty in deciding to do so. Cases of pure neurosis do not, as a rule, show the constant symptoms, or the association of symptoms that we have described. Further, in the cases of very young women we can always examine under anæsthesia and thus avoid any shock to the patient's feelings. The condition which most simulates that of chronic endometritis or chronic metritis, is simple undevelopment of the uterus as a whole. In this, however, there is generally a history of prolonged absence of menstruation. It is well for obvious reasons that such a condition should not be left undiagnosed, and the physical examination will definitely settle the matter.

Treatment. I think all will agree that little can be done by merely medical or palliative treatment for the kind of cases we are here dealing with. My practice has been to curette thoroughly under an anæsthetic, and with strict aseptic precautions, to wash out the uterus with sterilized water, and to pack for 24 hours with sterilized gauze. So far, I have had every reason to be satisfied with the results. Of the 40 cases I have been able to follow up 26. In 5 cases the operation has been performed too recently to justify any conclusion as to results, and from 9 other cases I have had no report. Of the 26 cases, 14 are practically well; 10 cases are very much improved but still have some symptoms; while in only two cases has there been practically no improvement since the operation. It is interesting to note that as a rule some time elapsed before the full benefit of the operation was obtained, and that this period occasionally extended to six months. It is probable that the curetting sets up a change in the mesometrium, which is not fully completed for some months. In many of the cases I have been able to note a distinct diminution in the size of the uterus, as measured by the sound, some time after operation. The symptoms which have most readily yielded to the treatment have been menorrhagia, leucorrhœa and the iliac pains, and dysmenorrhœa has been generally the last one to disappear. The most obvious alternative to curetting, and probably the measure most frequently employed is simple dilatation of the cervix. In my experience, the effects of this, even as regards the dysmenorrhœa, are very temporary, and it is manifestly not suited for cases in which in addition to stenosis there is also the glandular hypertrophy or thickening of the uterine wall. Incision of the cervix is open to the same objection. After this operation there is almost invariably cicatricial contraction, which leaves matters worse than before, and when the stenosis is at the internal os no plastic operation can be performed which will prevent this. The wearing of an intra-uterine stem is open to objection in the case of unmarried women, apart from the greatest objection that it is a continual source of danger.

When there is marked retroversion, or retroflexion, it might appear that ventrofixation would relieve the symptoms, but it is illogical to treat the displacement, which is merely a symptom of an unhealthy uterus, and at the same time to ignore the real cause of the trouble. As a matter of fact, in one of the cases in my list ventrofixation was done without the least effect on the patient's symptoms, and six years afterwards dilatation and curetting were sufficient to relieve her of trouble. Ventrofixation and curetting

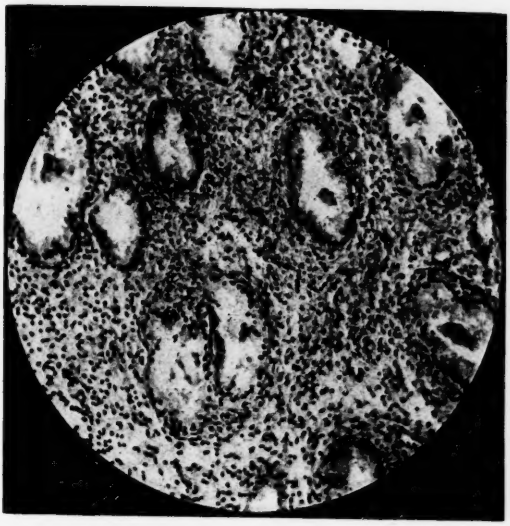


FIG. 1.—Section of a scraping from Case 14 in table.

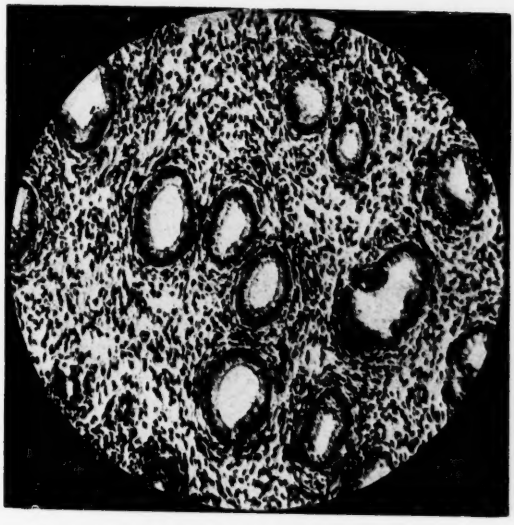


FIG. 2.—Section of a scraping from Case 30 in table.

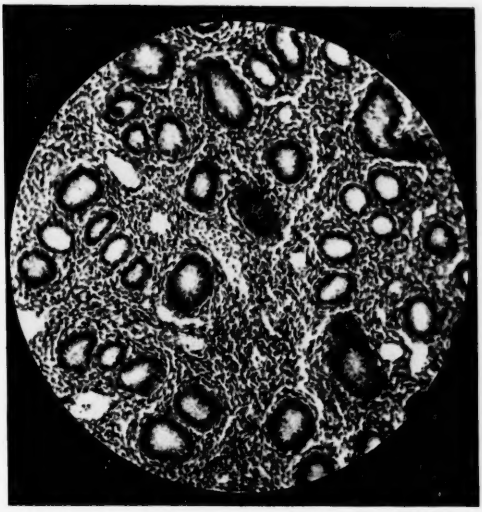


FIG. 3.—Section of scraping from Case No. 14 in table

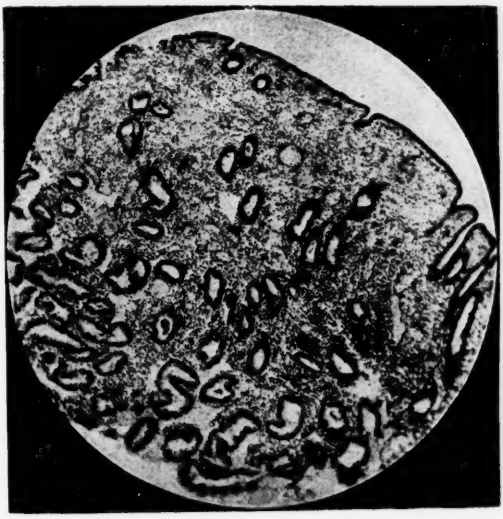


FIG 4.—Section of scraping from a case of haemorrhagic endometritis showing extravasation of blood in stroma.

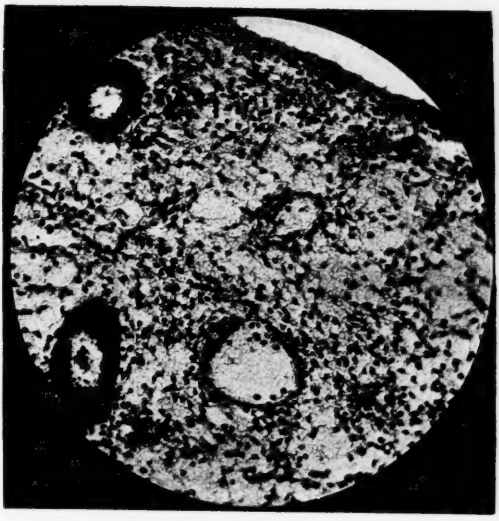


FIG. 5.—A portion of the field represented in Fig. 4 more highly magnified.

together would no doubt be successful, but since good results can be obtained by the minor operation it seems unnecessary to do more.

The point which I wish to emphasize is that there is an unhealthy or abnormal condition of uterine tissues in these cases, and it is this condition which calls for treatment. It is not merely a temporary congestion, caused by stenosis or displacement, but an overgrowth of tissue. To limit the treatment to dilatation of a narrow cervical canal or to rectification of a displacement is quite insufficient.

In conclusion, I wish to state that the microscopic sections from which the illustrations for this paper have been taken have been mostly prepared by Dr. Fothergill, who has also given me valuable help by writing the report which follows. I am greatly indebted to Dr. David Orr, of Prestwich, for the excellent micro-photographs of the sections.

REPORT UPON SCRAPINGS OF ENDOMETRIUM IN DR. DONALD'S CASES.

The material sent for examination consisted of portions of endometrium removed by the curette in a number of cases. The scrapings were pieces of tissue an inch to one and a half inches in length; their width corresponded to that of the curette used in removing them, and their thickness ranged up to one-eighth of an inch or slightly more. After fixing in 4 per cent. formalin solution, and dehydration by alcohol and aniline oil, the specimens were passed through xylol into paraffin. Sections were made perpendicular to the surface of the endometrium and were stained with hæmalum and eosin. The epithelium covering the surface of the mucosa and lining its glands does not show any important alterations. These cells are in a more active condition in some cases than in others, but in no case examined could the glandular epithelium be described as diseased. In one or two cases the glands were dilated. The blood-vessels are also practically unchanged in condition and in number. In some of the specimens examined the superficial portion of the mucosa contained extravasations of red-blood corpuscles into the inter-glandular connective tissue, but this, being a normal appearance during certain portions of the menstrual cycle, need not be regarded as pathological. The chief alterations observed are in

the stroma or inter-glandular connective tissue of the endometrium. In this tissue more or less condensation is generally seen which may also be suggested by the term "fibrosis." Thus in normal endometrium the bulk of the connective cells have rounded nuclei and bodies, only a small proportion of them being recognisable as fixed connective tissue cells with spindle-shaped or stellate form. In most of the specimens under consideration this proportion is altered, the bulk of the connective tissue cells being spindle shaped and not rounded. The tissue has the appearance of granulation tissue advancing towards the formation of fibrous tissue, and is, in fact, a more advanced form of connective tissue than is the stroma of the normal endometrium. The first stage of this change appears to be a swelling or œdema of the tissue, for in certain cases the cells are rounded but are more widely separated than is normally the case.

Apart from the condensation of the stroma above described, the only change observed in these specimens is general hypertrophy of the mucosa. This is marked in all the specimens, the thickness of the endometrium being much increased. In some of the specimens there may be some relative increase in the number of glands, but this is not marked.

There is not in these specimens any inflammatory change; there is no increase in the number of leucocytes or degeneration of the nuclei or of the cell protoplasm.

Fig. 1 shows some irregularity in the outlines of the glands whose epithelium is actively secreting, the nuclei being near the basement membrane, the cell body being elongated, as a rule, into the lumen of the gland. The bulk of the connective tissue cells are rounded as in normal mucosa, but they are widely separated, apparently by serous effusions into the intercellular spaces.

Fig. 2 shows the condensation of the stroma, which brings the glands somewhat nearer together than they generally appear. Spindle-shaped cells are relatively very numerous between the glands, which are themselves normal. The two photographs, 1 and 2, give a good idea of the general overgrowth of the mucosa.

Fig. 3 represents a section from another case. The glands and capillaries are numerous and normal; but the stroma looks like young fibrous tissue, the spindle cells being arranged in concentric layers round the glands and vessels.

Figs. 4 and 5 are from a section of a scraping from a similar case seen by Mr. Rodocanachi, and show the infiltration of the superficial part of the mucosa by extravasated blood. The light portions of the photographs near the surface epithelium are eosin stained red-blood corpuscles. The glands, capillaries, and underlying stroma are normal. Fig. 5 is a portion of Fig. 4 more highly magnified to show the red-blood corpuscles amongst the round cells of the stroma. Two capillaries, two glands and a portion of surface epithelium are included.

NOTE.—Fig. 3 is produced by permission of the Editor of the *Practitioner*.

No.	Name, Residence, Age.	Symptoms.	Conditions found on Examination.	Nature of Operation with Place and Date. Conditions found at Operation.	Results and Remarks.
1	Miss T., Bury, 24	Pain in right iliac region Dysmenorrhœa Leucorrhœa Nervous breakdown	Small cervix Acute anteflexion Body of uterus freely mobile Seems rather enlarged	Curetting, N.H., Feb. 17/01. Sound passed ½″ further than normal. Large quantity of pale m.m. scraped away	Last heard of in 1903 when she was in good health and free from pain
2	Miss T., Bury, 26	Dysmen. Leucor. Menor.	Small cervix Acute anteflexion Uterine body seems small	Curetting, N.H., Sept. 22/01. Sound passed ¾″ beyond normal. Moderate quantity of glandular debris scraped away	Last heard of a year after operation when she was very much better, but still suffered from dysmenorrhœa
3	Miss W., Rawtenstall 32	Pain in both iliac regions Dysmen. Menor. Leucor.	Small cervix Uterus retroflexed Body seems enlarged	Curetted, N.H., Nov. 10/01. Sound passed 1½″ beyond normal	Patient was a nurse and was compelled to give up work through dysmenorrhœa. A few months after operation resumed work and has felt quite well ever since
4	Miss W., Southport, 28	Dysmen.	Cervix small Acute anteflexion	Curetted, N.H., Jan. 21/02. Sound passed ½″ beyond normal	Not much improvement for six months—after that rapid improvement. Is now married and feels quite well
5	Miss H., Northwich, 27	Pain in right iliac region Menor. and metror. (for a month at a time)	Small cervix Anteflexion	Curetted, N.H., Feb. 27/02. Sound passed ¾″ beyond normal. Some thick strips of m.m. removed	A year after operation was much better; occasionally had some pain in side. Periods regular and not profuse
6	Miss A., Pendleton, 34	Pain in left iliac region Dysmen. Leucor. Nervous symptoms	Small cervix Acute anteflexion	Curetted, N.H., May 11/02. Sound passed 1″ beyond normal	Was rather slow in showing improvement, but a year after operation was heard of as being quite well
7	Miss F., Lytham, 35	Pain in left iliac region Leucor.	Small cervix Acute anteflexion Body of uterus very mobile, rather elongated	Curetted, N.H., May 16/02. Sound passed 1¼″ beyond normal; not much epithelium removed	No report since she left nursing home
8	Miss C., Lincoln, 26	Pain in lower zone of abdomen. Leucor. Menor. Nervous breakdown	Small cervix Acute anteflexion Body of uterus feels small	Curetted, N.H., May 31/02. Sound passes 1″ beyond normal. Thick strips of pale m.m. removed	Six months after operation she reported herself as very much better in every way
9	Miss B., Sale, 29	Pain in lower abdomen Dysmen. Leucor. Periods rather prolonged	Small cervix Acute anteflexion	Curetted, N.H., July 3/02. Sound passes ¾″ beyond normal; moderate quantity of mucous membrane came away	Is now quite fit for work (teacher) and never has any trouble
10	Miss B., Platt Bridge	Pain in lower abdomen Dysmen.	Small cervix Pinhole os ext. Body anteflexed, feels small	Curetted, St. M. H., Sept. 24/02. Sound passed ½″ beyond normal	No report since leaving Hospital

	Sale, 29	Dysmen. Leucor. Periods rather prolonged	Acute anteflexion	Curetted, N.H., July 3/02. Sound passes ¾″ beyond normal; moderate quantity of mucous membrane came away	Is now quite fit for work (teacher) and never has any trouble
10	Miss B., Platt Bridge 27	Pain in lower abdomen Dysmen.	Small cervix Pinhole os ext. Body anteflexed, feels small	Curetted, St. M.H., Sept. 24/02. Sound passed ½″ beyond normal	No report since leaving Hospital
11	Miss D., Blackpool, 25	Pain in both iliac regions Dysmen. Leucor. Nervous symptoms	Small cervix Acute anteflexion Body of uterus feels small	Curetted, N.H., Sept. 25/02. Sound passes 1″ beyond normal; m.m. rather thickened	Has been very much better until recently, when she has had dysmenorrhœa again
12	Miss B., Fallowfield, 28	Pain in both iliac regions Dysmen. Leucor.	Small cervix Retroflexion Body of uterus feels enlarged	Curetted at home, Dec. 1902. Sound passes 1″ beyond normal; m.m. rather thickened	Has been very much better in every way since the operation
13	Miss M., Birch Vale, 26	Pain in lower abdomen Dysmen. Leucor.	Small cervix Pinhole os ext. Body anteflexed, feels small	Curetted, M.R.I., March 23/03. Sound passes 1″ beyond normal. Thick strips of pale m.m.	No report since operation
14	Miss M., Eccles, 25	Pain in both iliac regions Dysmen. Leucor.	Small cervix Anteflexion Body feels small	Curetted, N.H., March 23/03. Sound passes 1¼″ beyond normal. Thick strips of m.m. removed	Report from medical man January, 1904, to the effect that she is practically well
15	Miss A., Blackpool, 22	Pain in right iliac region Dysmen. Leucor.	Small cervix Body anteflexed Feels small	Curetted, N.H., March 31/03. Sound passes ½″ beyond normal. Thick strips of m.m. removed	Seen on Oct. 15, 1903. Much better in every way, but still some dysmenorrhœa
16	Miss W., Walkden, 24	Pain in lower abdomen, especially right side Dysmen. Leucor.	Small cervix Acute anteflexion Body feels small	Curetted at home, May, 1903. Sound passes ¼″ beyond normal; m.m. moderately thickened	Seen Nov. 17, 1903. Much better. Pain in side gone. No leucorrhœa. Some pain in sacrum
17	Miss B., Levenshme 25	Pain in lower abdomen Dysmen. Leucor. Backache	Small cervix Anteflexion	Curetted, N.H., May 10/03. Very slight enlargement of uterine cavity	Seen January, 1904. Still complains of dragging pain. Not much improvement
18	Miss W., Colne, 30	Pain in lower abdomen Dysmen. Leucor.	Small cervix Anteflexion Body seems small	Curetted, N.H., May 23/03. Sound passes 1½″ beyond normal; considerable quantity of m.m. removed	Seen last October when she still complained of dysmenorrhœa and pain in the side
19	Miss E., Manchester, 27	Pain in left iliac region Dysmen. Leucor. Menor.	Small cervix Retroflexion Body of uterus enlarged	Curetted, St. M.H., June 13/03. No note of size of uterus. Endometritis	No report since operation
20	Miss M., Manchester, 32	Pain in lower abdomen Dysmen. Leucor. Periods rather prolonged. Backache	Small cervix Retroflexion Body enlarged	Curetted, N.H., July 12/03. Sound passes 1″ beyond normal; considerable thickening of m.m.	Feels quite well since the operation

No.	Name, Residence, Age.	Symptoms.	Conditions found on Examination.	Nature of Operation with Place and Date. Conditions found at Operation.	Results and Remarks.
21	Miss D., Denton, 32	Pain in lower abdomen Dysmen. Leucor.	Small cervix. Pinhole os ext. Acute retroflexion Body of uterus seems small	Curetted, N.H., July 30/03. Sound passes $\frac{1}{2}''$ beyond normal; moderate amount of m.m. removed	Since operation has been able to go back to her work as a nurse, and feels quite strong and well
22	Miss P., Kersal, 34	Pain in left iliac region Dysmen. Leucor.	Cervix small Acute anteflexion Body feels enlarged	Curetted, St. M.H., Aug. 5/03. No notes of size of uterus. Endometritis	No report since operation
23	Miss H., Gorton, 30	Pain in lower abdomen Dysmen. Leucor.	Cervix small. Pinhole os. Uterus was fixed by ventrofixation 6 years ago on account of acute retroflexion	Curetted, M.R.I., Aug. 10/03. Sound passes 1″ beyond normal. Well marked endometritis	Ventrofixation gave no relief although uterus is in normal position. Since last operation feels quite well
24	Miss H., Farnworth, 23	Pain in lower abdomen Dysmen. Leucor.	Small cervix Uterus anteverted Body large	Curetted, St. M.H., Aug. 19/02. Size of uterus not noted. Endometritis	No report since operation
25	Miss B., Douglas, 22	Pain in left iliac region Dysmen. Leucor.	Small cervix. Cervical catarrh. Anteflexion. Body of uterus feels small	Curetted, N.H., Sept. 10/03. Sound passes 1″ beyond normal; m.m. much thickened	Seen Jan. 5, 1904. Much better in every respect except for dysmenorrhœa which is still marked
26	Miss H., St. Annes, 27	Pain in right iliac region Dysmen. Leucor.	Small cervix Acute anteflexion Uterus feels enlarged	Curetted, N.H., Sept. 27/03. Sound passed $1\frac{1}{2}''$ beyond normal; m.m. much thickened	No report
27	Miss T., Bury, 26	Pain in lower abdomen Dysmen. Periods prolonged	Small cervix Retroflexion	Curetted, N.H., Nov. 5/03. Sound passes $\frac{1}{2}''$ beyond normal. Small quantity of m.m. removed	Good report, but case too recent
28	Miss D., Knutsford, 24	Pain in both iliac regions Dysmen. Leucor.	Small cervix Acute anteflexion	Curetted, St. M.H., Oct. 4/03. Size of uterine cavity not noted. Endometritis	Recent case
29	Miss S., Pendlebury, 27	Pain in right iliac region Dysmen. and Metro. Leucor.	Very small cervix Retroflexion	Curetted, N.H., Dec. 6/03. Sound passes $\frac{3}{4}''$ above normal. Well marked hypestrophy of m.m.	Good report, recent case
30	Miss B., Crewe, 24	Pain in both iliac regions Dysmen. Menor. Leucor.	Small cervix Erosion Acute anteflexion	Curetted, Jan. 5/04. Sound passes 1″ beyond normal. Well marked endometritis	Recent case
31	Miss M., Manchester	Pain in both iliac regions Leucor. Menor.	Cervix normal Some erosion	Curetted at home, Sept. 3/01. Uterine cavity considerably enlarged. Sound	Has been entirely free from menorrhagia and metrorrhagia. Is much better but complains of pain in region of coccyx

30	Miss B., Crewe, 24	Pain in both iliac regions Dysmen. Menor. Leucor.	Small cervix Erosion Acute anteflexion	Curetted, Jan. 5/04. Sound passes 1″ beyond normal. Well marked endometritis	Recent case
31	Miss M., Manchester, 28	Pain in both iliac regions Leucor. Menor. Metro.	Cervix normal Some erosion Retroversion	Curetted at home, Sept. 3/01. Uterine cavity considerably enlarged. Sound 1″ beyond normal; m.m. thickened	Has been entirely free from menorrhagia and metrorrhagia. Is much better but complains of pain in region of coccyx
32	Miss B., Macclesfield 26	Pain in right iliac region Dysmen. Leucor. Menor.	Cervix normal Retroversion	Curetted, St. M.H., Oct. 9/02. Uterine cavity enlarged. Endometritis	No report
33	Miss D., Bowdon, 30	Dysmen. Metro.	Cervix normal Anteversion	Curetted, N.H., April 19/02. Sound passes 1″ beyond normal. No hypertrophy of m.m.	A year after operation was much better in every respect
34	Miss R., Old Trafford 29	Pain in both iliac regions Dysmen. Menor.	Cervix rather small Retroversion	Curetted at home, March, 1903. Sound passed ¾″ beyond normal; m.m. thickened	Has been very well since operation. Complains of pain in region of coccyx
35	Miss L., Knutsford, 24	Pain in lower abdomen Periods rather profuse Nervous symptoms	Cervix rather small Retroversion	Curetted, N.H., July 15/02. Sound passes 1″ beyond normal. Slight thickening of m.m.	Was a nervous invalid before operation. Is now quite strong and well
36	Miss D., Pendleton, 25	Pain in both iliac regions Leucor. Dysmen.	Cervix rather small Retroversion	Curetted, St. M.H., Jan. 21/03. Uterine cavity enlarged. Endometritis	No report
37	Miss D., Southport, 25	Pain in right iliac region Dysmen. Leucor. Nervous breakdown	Small cervix Anteversion Uterine body feels big	Curetted, N.H., March 30/03. Sound passes 1¼″ beyond normal. Thickening of m.m. not marked	Has been much better since a few months after operation. Was a complete invalid before and is now able to go about and do a good deal. Previous operation for appendicitis for pain in right iliac region
38	Miss V., Pendleton, 36	Pain in right iliac region Dysmen.	Stenosis of external os Retroversion	Curetted, N.H., Nov. 26/03	Good report, recent case
39	Miss T., Earlestown, 32	Metro. Leucor.	Marked cervical catarrh	Curetted, N.H., Feb. 27/03. Sound passes ½″ beyond normal.	Symptoms entirely relieved by operation. Is now married and has one child
40	Miss H., Southport, 33	Leucor.	Marked cervical catarrh and hyperplasia Anteversion	Curetted, N.H., Oct. 27/01. Uterus not increased in size. No change in corporeal m.m.	Improvement was slow, but she is now quite well

Abbreviations.—N.H., Nursing Home; St. M.H., St. Mary's Hospital, Manchester; M.R.I., Manchester Royal Infirmary.

Puerperal Septicæmia, with special reference to the value of Anti-streptococcic Serum, based on an observation of 61 cases.

By Nathan Raw, M.D., M.R.C.P. (Lond.), *Physician, Mill Road Infirmary, Liverpool.*

I know of no disease affecting the human body which is more distressing to observe, or more relentless in its attack, than a virulent infection of puerperal septicæmia. In a civilized country, labour ought to be a comparatively safe and certain process, but it is at once transformed into a dire calamity by the invasion of pathogenic organisms from without, an invasion which, in the great majority of cases, is preventable, and therefore ought to be prevented. What we owe to Lister and the adoption of antiseptic and aseptic surgery, no living man can tell, suffice it to say that in no domain of medicine or surgery has the benefit been more observed that in the conduct of obstetric cases, and thousands of women have been spared who otherwise would have succumbed to this dread disease.

To use the term puerperal fever in the same way as scarlet fever or typhus, is, in my opinion, erroneous, and it would be well to entirely discard the word fever and to name it puerperal septicæmia. Many are the theories which have been advanced to account for the disease, but the only one which will bear the test of discussion is that which regards it as in no way differing from what we ordinarily call pyæmia or septicæmia.

For convenience it is desirable to divide the subject into two sections:—

1. Puerperal sapræmia.
2. Puerperal septicæmia.

In the first group of cases—the sapræmic—the symptoms are not, as a rule, serious, and local treatment such as washing out the uterus and removing decomposing pieces of retained placenta will generally suffice, if practised early. It is rather to the second group—the true septicæmic—that I wish to direct attention.

"It is probable that any decomposing matter may infect, but that some forms operate with more certainty and greater virulence than others" (Playfair). It has been affirmed that sewer gas or badly-ventilated houses will produce it, but I very much doubt it, as when one considers the conditions of the houses of the very poor it is surprising how comparatively few cases arise in them.

Fortunately for us all the most potent organisms, viz., the streptococci are not conveyed in the atmosphere, otherwise few women would escape infection.

One of the most extraordinary things in connection with this disease is the tenacity of the poison and the length of time that it will linger in the person of the nurse or physician. I have myself had three women under my care, all of whom were infected by one nurse in the course of a week, and there are numerous examples of localized epidemics all traceable to the practice of one obstetric nurse.

There are many extraordinary instances in which the unhappy property of conveying contagion has clung to individuals in a most mysterious way, and I have known several cases in which both nurses and doctors have had to abstain from attending labours on this account. Some have thought the individual saturated with some special poison which he could not get rid of, but I venture to think, that a thorough scrubbing with antiseptics and the wearing of sterilized rubber gloves, would soon remedy this supposed defect.

There are also some of the infectious diseases which are highly dangerous to the lying-in woman, chief of these being erysipelas, scarlet fever and diphtheria. In my opinion by far the most dangerous is erysipelas, however mild the attack. It is for this reason that it is not judicious to attend obstetric cases in General Hospitals, where it is so easy for the septic process to be started There is, however, little danger in a medical man or nurse attending such cases concurrently with the labour, provided that ordinary antiseptic precautions be taken in examination and delivery. There is, however, no doubt that scarlet fever arising in the house, or in the woman, will produce puerperal septicæmia, and Braxton Hicks has quoted 68 cases seen by him in consultation in which the poison was traced in no less than 37 to scarlet fever.

Diphtheria is capable of producing a most malignant form of endometritis and septicæmia, characterized by the formation of a dense diphtheritic membrane over the whole of the endometrium and cervix, and all the toxic symptoms of the disease. A most interesting example of this came under my notice last year, for the details of which I am indebted to Dr. Llewellyn Morgan, who was attending some members of the family but not the confinement. A midwife, whilst suffering from diphtheria, attended three women in confinement. They all developed puerperal fever, two of them coming under my care at the hospital, whilst the third died at home. Almost every member of the family was attacked by diphtheria, and one of my patients died. I operated on both, scraping away enormous

masses of thick grayish diphtheritic membrane, which on examination bacteriologically was a pure culture of diphtheria bacillus. One woman recovered, the other died.

Bacteriology. The pyogenic organisms which have been described as causing puerperal septicæmia are numerous, the chief being:—

1. Streptococcus pyogenes or streptococcus erysipelatis.
2. Other forms of streptococci not yet accurately classified.
3. Bacillus coli communis.
4. Staphylococcus pyogenes aureus.
5. Staphylococcus pyogenes albus and other staphylococci.
6. Micrococcus tetragenus.
7. Pneumococcus.
8. Gonococcus.
9. Diphtheria bacillus (Klebs Löffler).
10. Coccus of scarlet fever.

By far the most constant organisms found in an acute case are, of course, the streptococci, especially the pyogenes, with occasionally other varieties. This is the coccus which multiples at an extraordinary rate, spreads rapidly by the lymphatics and blood stream and kills the patient quickly, unless some counter-measures can be rapidly adopted. Then next in frequency are the staphylococci, more especially the s. aureus, but often there are mixed varieties. These organisms are not so virulent, spread more slowly, and can often be combated by the patient herself. In some cases, however, I have met the most malignant forms of puerperal septicæmia terminating fatally in which I have only been able to discover bacteriologically and microscopically staphylococcus aureus and albus.

We come now to a most dangerous infection, viz., that from the bacillus coli communis, and I think it is only in recent years, that we have learnt how very virulent this bacillus may be. It seems certain that the infection is always conveyed from some fæcal matter around the genitalia to the vagina or cervix, or even into the uterus itself by hands or instruments. I have found this organism in a great many of my fatal cases alone, and no treatment seems to have much effect.

With regard to the other organisms described I have never been able to isolate pneumococci or gonococci, and I doubt if either will produce septicæmia, although we know that virulent pneumococci will produce peritonitis. Certainly if gonococci could produce the disease *per se*, a great many women would be affected, but this is not my experience, as I have seen scores of women with gonorrhœa

delivered without infection. I am certain that scarlet fever and diphtheria will both produce true septicæmia, and it is well known that the streptococcus of erysipelas is most virulent to parturient women.

The following table will show exactly the nature of the organisms found in my 61 cases of puerperal septicæmia. It is my practice at the hospital to have specimens of discharge and blood if necessary examined at once in the hospital laboratory, so that we can be informed at once of the nature of the infection. This is readily done and is of the greatest value in directing our treatment.

MICRO-ORGANISMS FOUND IN 61 CASES.

Cases.	
27	Streptococcus pyogenes.
6	Staphylococcus aureus; staphylococcus mixed infection.
13	Mixed infections.
11	Bacillus coli communis.
1	Diphtheria.
3	No growth of organisms.
61	

Symptoms. In a great many cases the disease commences insidiously generally within two or three days after delivery. If the symptoms develop after a week, the cause is usually some decomposition of retained membrane or placenta in the uterus. The patient complains of chilliness and occasionally there is a rigor, on examination the temperature may be found to be 101 degrees or anything up to 104 degrees or 106 degrees according to the severity of the infection. It must, however, be borne in mind that it is not uncommon for parturient women to develop a temperature of 102 degrees or 103 degrees without any apparent cause and otherwise feeling well, and, therefore, a rise of temperature by itself would not necessarily indicate infection. It may be caused by auto-infection from overloaded bowels, and a good saline purge will soon reduce it. The pulse is increased—always a danger signal—to 120 or 140. The patient is sleepless, with an anxious expression and sallow countenance. Pain as a symptom is very variable, some patients complain of intense pain at the lower part of the abdomen and the uterus is tender on pressure, in other cases no pain is ever complained of. Intelligence is unimpaired and unfortunately this is often the case even to the time of death. The lochia are generally suppressed or altered in character and usually slightly offensive in odour, in the sapræmic cases it is very offensive. Diarrhœa, vomiting,

abdominal distension and delirium may ensue in the worst cases, and generally point to a fatal issue.

The method of spread of the infection then, determines the local symptoms. In a great many cases peritonitis follows early in the attack, and extension to the pleura and pericardium is common in severe cases. I have had three cases under treatment in which the joints were affected with acute suppurative arthritis requiring operation and drainage, in two death ensued, the other recovered with a stiff knee joint. Abscesses may form in the connective tissue in all parts of the body and in no way differ from ordinary metastatic abscesses met with in other septic diseases.

We should bear in mind that acute malarial attacks may supervene on delivery in women who have lived in tropical climates and who have suffered from malaria. It is characterized by severe rigors and high temperature, but rarely commencing before the fifth or sixth day after delivery. Leucocytosis is again an important indication of the onset of an acute septic process, but in puerperal septicæmia cannot always be relied on.

Treatment. My chief object in bringing this subject before you is to give you my experience of the value of antistreptococcic serum, as I have an excellent opportunity of testing it. Before referring to it in detail, perhaps it would be desirable to discuss other methods of treatment. There is no disease in my experience in which it is so important to commence treatment early. The first thing to do, when sepsis is suspected, is to remove the cause and prevent its spread. For this reason a careful and minute inspection of the genitalia is necessary to discover any tear or laceration which is absorbing septic matter. The vagina and cervix should be examined with the same object. By far the most important treatment is to give an intra-uterine douche of some powerful germicide, and if possible to explore the uterus with the finger in search of retained membranes, placenta or blood debris. I have found the best antiseptic lotion to be chinosol. It is necessary to bear in mind that occasionally fluid will pass along the Fallopian tubes into the peritoneum, as happened once in my experience, hence there should be a deep groove in the intra-uterine tube, and little pressure should be employed.

The question of curettage of the uterus is debatable. In some cases a large blunt curette may be employed, but great caution should be used, as in some cases sinuses have been opened and new channels for infection provided, or it is easy to push it through the soft uterus and then the result is disastrous. I pin my faith to large doses of quinine and stimulants, 10 grains of quinine as the first dose and

5 grains every four hours afterwards, until cinchonism is produced. Brandy, or whisky, or port wine is useful, and supports the patient's strength, enabling her to battle against the attack. Tincture of perchloride of iron often does good, and many people have a great belief in veratrum viride, but I have never seen it do good. Many other drugs have been useful, especially sedatives and hypnotics at night, as well as a good nourishing fluid diet. The uterus and vagina should be repeatedly washed out and lightly packed with iodoform gauze, or what I always employ—branalcane gauze.

In spite of all such treatment a great number of cases require something more to counteract the deadly effects of the toxin. We have had, in my opinion, a most valuable remedy to our hand, for some years, viz., antistreptococcic serum, but owing to the fact that it has often been used in other than streptococcal infections, it has fallen into disrepute in the profession. From the very nature of things, it can only be of service in cases where the infection has been proved to be due to streptococci, and if it is used in cases of bacillus coli, and other infections, we must not be surprised at failure. This serum, quite unlike diphtheria serum, is not anti-toxic, but rather anti-microbic in its action, as streptococci produce little or no toxin.

Marmorek was the first to produce a serum for streptococcic infection, and as the serum is manufactured from living cultures of streptococci it is not free from risk. In the first place the virulence of the cultures must be greatly enhanced by the passage through a susceptible animal such as the rabbit. The number of passages required varies from 20 to 30, at the end of which time the virulence does not become exalted by further passages; the culture may therefore be termed a fixed virus (Hewett). Animals have now to be immunized to streptococci, and the horse, ass, or mule may be employed. The animal is first injected with a small dose, which is gradually raised until it is completely immunized, this being shown by the injection of 100—200cc. of culture without harmful effect. The period of bleeding the horse for the purpose of obtaining the serum is highly important, as Marmorek found its blood to be toxic for 15 days after the last injection of culture. Marmorek thinks that all streptococci are identical but others are of a different opinion and recommend immunizing against all varieties of streptococci. The serum is then standardized and ready for use.

The therapeutic effect in a typical case of streptococcic serum is marvellous. The dose I always employ is 20cc. injected with antiseptic precautions under the skin of the abdomen, and repeated twice

daily. The temperature falls and the patient perspires and often falls asleep whilst the pulse-rate is markedly decreased. I append several typical charts illustrating the value of serum (Figs. 1—4). If the temperature is not affected after 6 doses of 20cc. then I think it will be useless. It is highly important that the serum should be fresh and obtained from a good firm, as the greatest care is necessary in its manufacture.

Six years ago I had a patient who was nearly killed by anti-streptococcic serum, as after every injection she developed rigors and high temperature. I suspected the serum, which was dry, and to my horror found it contained numerous living streptococci which grew readily on agar. I notified the firm, who, after examination, confirmed my diagnosis, and it was all withdrawn from the market, and a fresh start made in its manufacture. The cause was easily discovered, the porcelain filter which was used, allowed living organisms to pass into the filtrate through a crack. Since publishing that case in February, 1898, I have repeatedly tested the various anti-streptococcic sera on the market and I have invariably found them free. I use that supplied by Parke, Davis and Co., or the Pasteur Institute, and have been much pleased with both. I have never seen harm result from its use, on the other hand numerous cases of erysipelas, septicæmia, and other pathogenic infections have been saved by it. I never employ it unless streptococci have been found in the discharge from uterus, as it is otherwise useless; but I think my tables will show that it is a valuable addition to our present means of attacking what is in my opinion one of the most virulent and distressing diseases which we are called upon to treat.

TABLE I.

Total number of Cases under observation in Mill Road Infirmary, Liverpool.

No.	Recovered.	Died.	Death-rate.
61	32	29	48 p.c.

TABLE II.

Number treated with Antistreptococcic Serum.

No.	Recovered.	Died.	Death-rate.
37	24	13	36 p.c.

NOTE.—Serum was only used in those cases where streptococci were found.

TABLE III.

Number treated without Serum.

No.		Recovered.		Died.		Death-rate.
24	.....	8	.....	16	.....	60 p.c.

Several patients in Table III. were admitted in an advanced stage of the disease, when obviously no treatment would be of avail.

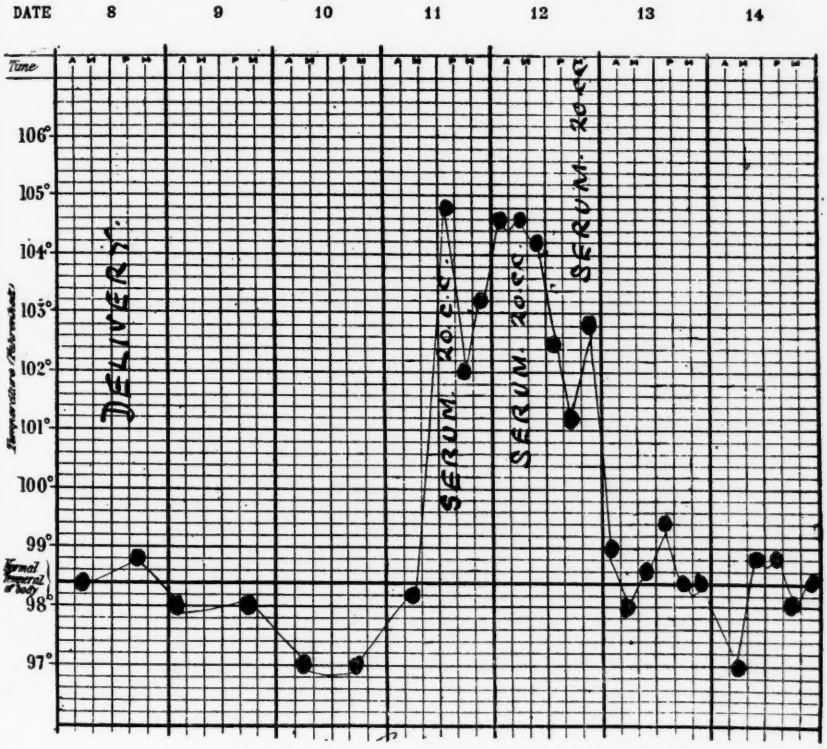
In conclusion I would like to summarize as follows, as the result of seven years observation of its effects on numerous and varied pathogenic infections:—

1. Streptococci must be demonstrated by the microscope and confirmed if possible by cultures, before the serum is used.

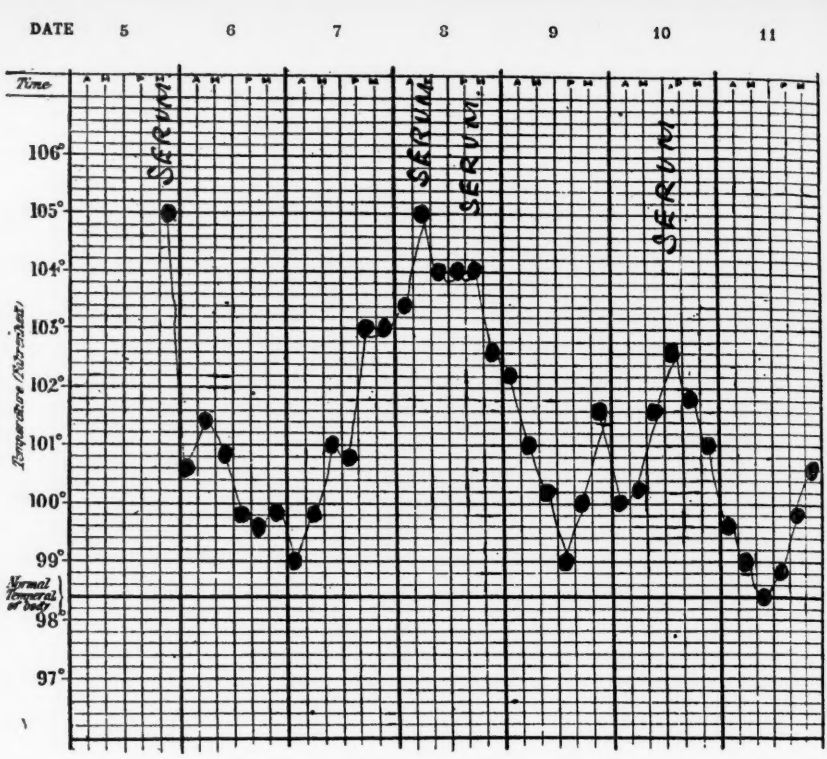
2. The serum must be used in an early stage of the disease if its full benefit is attained.

3. The doses should be large and repeated often.

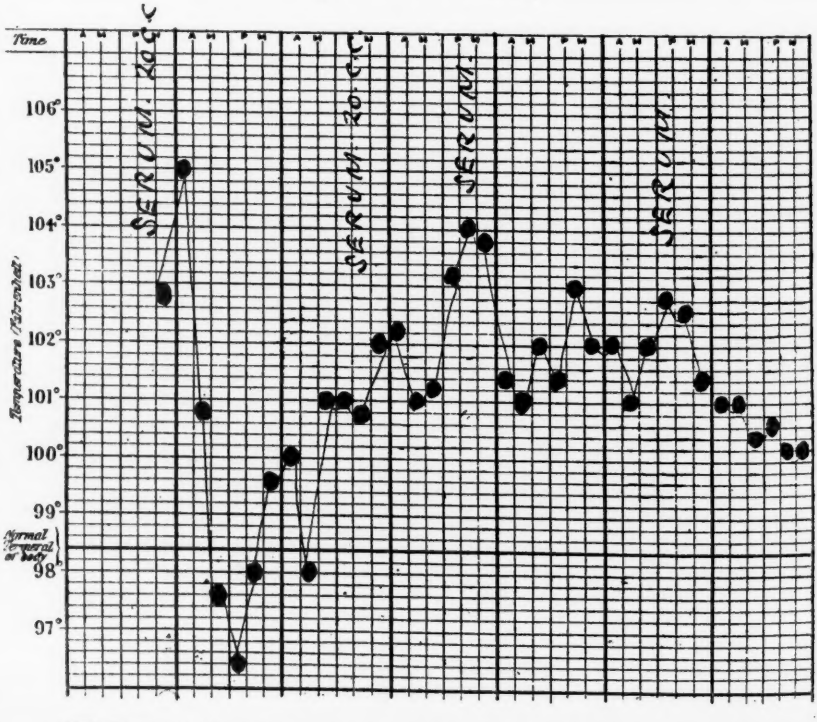
I would like to express my high appreciation of the work and kindness of my junior colleagues, past and present, at the Hospital, and of their kind co-operation and assistance in this research.



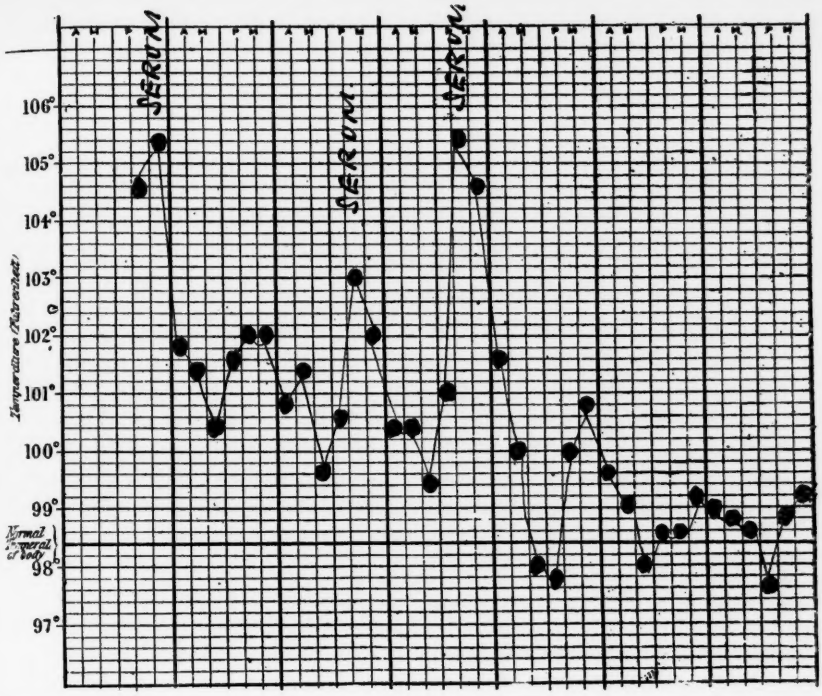
Rigor 3rd day. 60 c.c. Serum. Recovery. Streptococci in large numbers from Uterus. Temperature recorded 4-hourly.



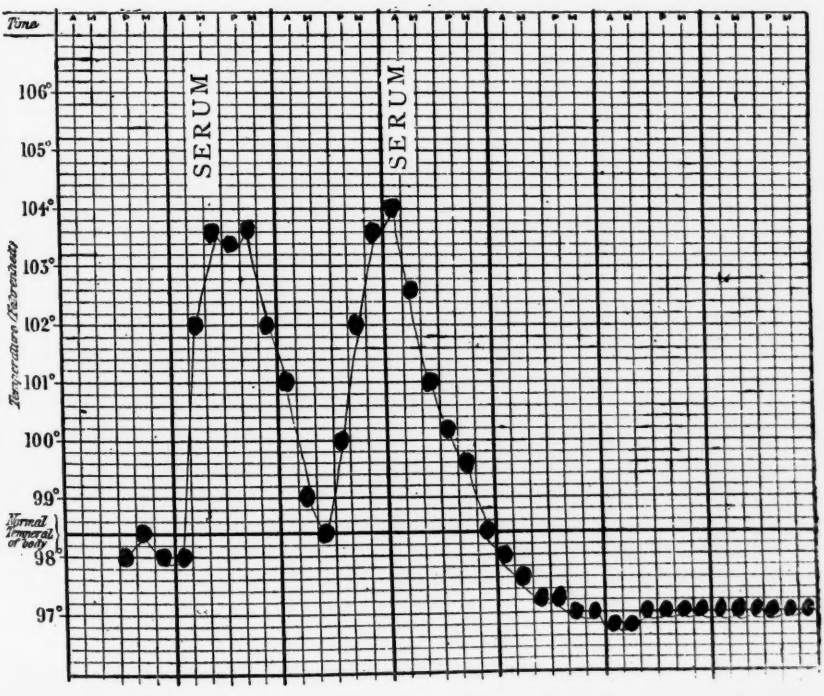
II. Rigor 3rd day. Serum. 80 c.c. Recovery. Streptococci found in Uterus.
Temperature recorded 4-hourly.



III. Rigor 4th day. Serum. 80 c.c. Recovery. Streptococci found in Uterus.
Temperature recorded 4-hourly.



IV. Rigor 5th day. Abscesses under Skin. Serum. 60 c.c. Recovery. Streptococci and Staphylococci in Uterus. Temperature 4-hourly.



V. Rigor 4th day. Difficult labour. Septic Perinæum. Serum. 40 c.c. Recovery. Streptococci and Staphylococci in Uterus. Temperature 4-hourly.

The Estimation of Proteid in Small Quantities of Human Milk.

By Alfred W. Sikes, M.D., B.Sc. (Lond.), F.R.C.S., M.R.C.P.,
Pathologist to Queen Charlotte's and the Samaritan Hospitals.

(From the Pathological Laboratory of Queen Charlotte's Hospital.)

I have been for some months experimenting with a view to finding a quick and reliable method of estimating the amount of proteid in specimens of milk, usually from those cases where the children were not gaining, or getting on as well as might have been expected. The estimation of the fat is a comparatively easy process, but it is also necessary to know the percentage of proteid, as it is quite possible that an excess or deficiency of this constituent may upset the child. The amount of sugar present I have found to vary so slightly that I do not consider the estimation of this substance of much importance.

In estimating the proteid in the usual way by means of first estimating the sugar, the fat, and ash, and then deducting from the total solids, the difficulty is that it requires a considerable amount of experience to get exact results; one requires a lot of apparatus; it takes up a great deal of one's time, and it requires a much larger sample of milk than in the method I will presently describe, and in many cases where the infant is not thriving, and the supply of milk small, one can only obtain a few cubic centimetres of milk.

Before reaching the process described below I tried all the well-known precipitants of proteid, including phospho-tungstate, trichloracetic acid, etc.; I also endeavoured to estimate the proteid by precipitating, and comparing the colour produced by adding the reagents which give definite colours with proteids; but I did not succeed in arriving at any satisfactory conclusion. I also tried by centrifugalising the precipitates in graduated tubes, rotating for definite times, and at the same rate of rotation, but this was found to be unsatisfactory, as even with two exactly similar preparations rotated at the same time the amount of precipitate read off was different, as the density of the precipitate varied; even an extra shake while adding the reagent, or the addition of the precipitant in slightly different ways, making all the difference. With large quantities of milk it might have been possible to do something with this method, but it was quite impracticable with small amounts.

I next tried alcohol and ether, first precipitating with alcohol, centrifugalising, then washing the precipitate with ether, then again with alcohol, but this does not remove all the sugar, and the ether

renders the proteid very firm, so that it is difficult to wash afterwards with alcohol.

I finally adopted the following process:—1cc. (or better 1 gramme) of the milk is put into the glass tube of a centrifugal machine, to this 14cc. of absolute alcohol is added and enough dilute acetic acid to render it faintly acid, it is then heated in a water bath till it begins to boil, then rapidly centrifugalised, the supernatant liquid (if it be not quite clear) poured off through a small, good filter paper (this filtrate, as it cools, gives a whitish deposit of fatty substances, and the solution contains nearly all the sugar); 14cc. of alcohol is again added, shaken up, boiled, centrifugalised, and the supernatant liquid filtered, if necessary, as before; this is then repeated a third time; finally any traces of proteid in the filter paper are washed off with some hot absolute alcohol, mixed with the precipitate, which is then transfered to a platinum capsule, evaporated over a water bath, dried at 100°F., weighed, and the residue incinerated; the weight of capsule plus ash, deducted from the weight of capsule plus proteid, etc., gives the amount of proteid present in the quantity of milk taken.

In the above method the third filtrate does not give any colour with the xantho-proteic test, and does not give any reducing reaction with Fehling's solution; the second filtrate usually shows the presence of traces of sugar, and no trace of fat could be found in the washed precipitate. The use of boiling alcohol is absolutely necessary. In the above process all the usual precautions must be observed, such as never touching the capsule with the fingers, heating to redness before the capsule is used, and always allowing to cool in a dessicator.

In many cases it has been found that where the quantity of proteid was above the average the amount of fat was low, and this is perhaps what one would expect in poorly nourished mothers, assuming that fat is derived from proteid.

The following table gives the results obtained in 14 consecutive estimations from specimens taken between the 3rd and 12th days since confinement:—

Date		Confinement		Per cent of proteid
Oct. 6	.....	3rd day	.....	1·30%
„ 14	.....	9th „	.....	1·50%
„ 14	.....	8th „	.....	1·85%
„ 18	.....	12th „	.....	2·15%
„ 18	.....	9th „	.....	2·15%
„ 29	.....	4th „	.....	1·70%
„ 29	.....	4th „	.....	1·80%

Date		Confinement		Per cent of proteid
Nov. 3	.....	10th „	.....	1·80%
„ 5	.....	7th „	.....	2·10%
„ 5	.....	5th „	.....	2·10%
„ 16	.....	9th „	.....	2·95%
„ 30	.....	9th „	.....	1·80%
Dec. 15	.....	8th „	.....	1·20%
„ 15	.....	5th „	.....	1·45%

The above results give an average of 1·84 per cent., they are not exactly accurate as the quantity of milk was 1cc., but taking the sp. gr. of milk as 1,030 the corrected average comes out as 1·79 per cent., and the number usually accepted now is rather under 2 per cent. Since using the above for estimating the proteid of milk I find that it can also be used for estimating the proteid in the urine of renal cases. The estimation of the proteid by the above method takes less than an hour, and a good part of this time the precipitate in drying, so that the actual time employed in the process is small. One does not require much in the way of apparatus, as in all small laboratories there is a balance which will weigh to half a milligramme, a centrifugal machine, a water bath and a drying oven.

A Case of Encysted Serous Perimetritis.

By Percival Ellison Barber.
Surgeon to the Jessop Hospital for Women, Sheffield.

The patient was admitted into Hospital March 21st, 1903.

Personal History. Age 34 years; married 19 years; nine children, last 9 months ago; no miscarriages; labours and puerperia normal; menstrual history normal till commencement of this illness. She suckled her last baby for 3 months, when her milk "left her." Six weeks after her confinement menstruation appeared and recurred regularly, lasting 4 days. Four weeks before admission she had a normal period; a fortnight later it occurred again and lasted 12 days; a day or two after it commenced again and there was slight hæmorrhagic discharge on admission.

History of Present Illness. Patient stated that 4 weeks ago, whilst "unwell" she attended a funeral and was exposed to cold. She had sudden general abdominal pain with shivering. The period proceeded normally. She was ordered to bed by her doctor, and remained there for a fortnight, during the first part of which the abdominal pain was severe, but later it abated somewhat. There was no bowel or bladder trouble at this time. She then got up and remained comparatively well for 12 days, when she had sudden severe paroxysmal pain round the anus. This continued, with a sense of bearing down and some difficulty in commencing to micturate.

Condition on admission. Patient was a big, well-built woman, with a pasty-looking face, somewhat anæmic. Her temperature was 100°F. The abdomen was very fat and pendulous, and there was as a result some eczema intertrigo. Owing to these circumstances palpation was difficult; still it was possible to make out by the abdomen the upper rounded limit of a swelling in the right iliac region.

Per Vaginam. There was some hæmorrhagic discharge, and some bulging of the posterior vaginal wall. The pelvis was occupied by a tense, round, elastic swelling, which bimanually was found to be continuous with that felt on palpation. The os was not to be found, though on passing the finger upwards between the tumour and the symphysis pubis, a suspicion occurred that it was there, and possibly a longer index finger than mine would have made this a certainty. On deep pressure through the abdominal wall, a sense of something more solid than the tumour was felt in front of it, running obliquely upwards and to the right. This was thought to be the uterus, and such it proved to be.

Subsequent History. On the day after admission the pressure symptoms rapidly increased. There was no action of the bowels, complete retention of urine, increased bulging of the posterior

vaginal wall, with œdema round the anus and posterior part of the vulva. I therefore decided to operate. Being uncertain as to the exact nature of the swelling I did an abdominal section. On passing the finger into the abdomen the uterus was found to be an abdominal organ, in fact the swelling felt through the wall running obliquely upwards. The pelvis was occupied by a tense, round, elastic swelling, but this was so shut off from the general peritoneal cavity as to be practically extraperitoneal. I therefore concluded that it would be safer for the patient to open it from the vagina. Consequently I closed the abdominal wound, and having put her into the lithotomy position, opened it through the posterior vaginal wall, close to its junction with the cervix. A large quantity (some was lost so I cannot state the amount) of clear serous fluid escaped, and with it a lump of coagulated lymph.

On exploring the cavity with my finger, it gave the impression that it was lined with velvet, due, I suppose, to coagulated lymph. I inserted a Keith's drainage tube, had the cavity gently irrigated every three hours, and on removing the tube after 48 hours, inserted a gauze drain. This was gradually shortened. There was very little further discharge.

A few days later I made a vaginal examination and found the uterus in its normal position. Save for a sharp attack of bronchitis, induced in one liable to it by the ether, she made an uneventful recovery. On the only occasion upon which I have seen her since she was quite well.

From the *Transactions of the Obstetrical Society of London*, I learn that as long ago as 1885, in discussing a case of serous perimetritis, reported by Dr. Williams, many members regarded the condition as a common one. Enquiries made by me from others with far longer experience than I can claim, lead me to think that it is comparatively rare. Dr. Donald, of Manchester, however, has operated upon the same patient twice for it.

It is said to be generally associated with a diseased condition at the tubes or ovaries, but the history of my case would rather, I think, suggest the possibility of some reflux of blood along the tube—a condition considered possible by Bernutz and Goupil,—for she was menstruating at the time; and I recognised no disease of the appendages, nor did the patient ever complain of symptoms pointing thereto.

Fœtus showing a rare Mal-development of the Cloaca, Procto-dael Depression, Mullerian Ducts and other Structures.

By John T. Hewetson, M.D., F.R.C.S., *Assistant Obstetric Officer, General Hospital, Birmingham; Assistant Curator, Pathological Museum, University of Birmingham.*

The fœtus here described was sent to the Pathological Museum of the University by Dr. Tracy Lydall, to whom I am indebted, not only for the specimen but also for the following account of the labour, which I reproduce in his own words.

"Mrs. S., æt. 32, who had already had five children, engaged me to attend her in her sixth confinement, which she reckoned would take place on or about September 9th, 1903. She is a tall, well-made woman, who had always had normal labours and strong healthy babies. The course of her pregnancy on this sixth occasion resembled very much those which had preceded it, except perhaps that she was rather larger than in any of the others; she felt the child's movements quite plainly from mid-term. None of her previous children had manifested congenital abnormalities of any kind, nor was there history of such on either the maternal or the paternal side. On June 25th (Mrs. S. being at this date nearly at the end of the seventh month of her pregnancy) her husband was severely injured at his work by the explosion of a heated steel tube, which burned him extensively just above the pubes and in the right groin. He was taken to hospital, where he was detained for a period of two weeks. On his return home it was necessary for his wife to dress his wound every day. Mrs. S. was very much shocked on seeing her husband's injuries. She informed me that there was "a hole in the wall of the bowels you could put your hand into," and she at once made up her mind that the child which she was bearing would be marked in some way in consequence. I was sent for urgently about 1 p.m. on August 28th, and found my patient in strong labour. The os was fully dilated and a bag of waters presented, through which could be felt the vertex in the L.O.A. position. I ruptured the membranes. The head was gradually born without assistance. The pains continued, but no advance occurred, and the child's face became deeply cyanosed. In spite of strong pressure on the abdomen above, combined with traction on the head below, no progress was made. I then with some difficulty passed thick tapes under the axillæ of the child and made strong traction on them. The shoulders and arms were soon delivered, but still the rest of the body did not pass. Traction on the arms was resorted to, and whilst pulling thus a sudden sense of giving way was experienced and the rest of the child was born immediately. It was at once apparent that a large umbilical hernia had caused the obstruction, it being wedged at the pelvic brim. This, however, ruptured during traction on the arms, and the trunk was able to enter the pelvis and allow the fœtus to be born. The child cried lustily, and the cord which arose from the upper part of the hernial covering was tied and divided. The placenta came away spontaneously with the next pain. The mother, in spite of the hard time she had passed through, made an admirable

recovery. The hernia, the coverings of which were torn through, as above described, seemed to consist mainly of a distended transverse colon with some coils of small intestine. It was evident that nothing could be done for the child, so it was wrapped in wool and given at regular intervals diluted milk containing 5 minims of brandy to the ounce. In addition to the hernia the child presented many abnormalities, amongst others club-feet, spina bifida and imperforate anus. The most remarkable feature, however, was the aspect of the external genitals. These resembled the female type in showing labia majora, but hanging from between them by a very thin pedicle was a small translucent bladder, about one inch in length and half an inch in breadth at its widest part; it tapered to a point at each end. This bladder did not seem to alter at all during the time the child lived, neither shrivelling up nor becoming more distended. As far as could be made out there were neither vaginal or urethral orifices, and the child was not observed to pass water during its life. The hernial contents protruded more and more as time went on, the colon becoming distinctly more distended and exuding a thin sanguineous liquid which smelt fæcal. The child lived about 48 hours and cried incessantly during that time. No nourishment could be retained, and in view of its condition treatment was quite hopeless."

The fœtus presented a series of congenital abnormalities, many of which were at once evident upon a naked-eye examination of the body. The feet were in a state of double talipes varus. A well-marked median dimple existed over the lower part of the lumbar vertebræ. The anterior abdominal wall showed a large congenital deficiency in the region of the umbilicus. The diameter of this opening was 3 inches. The umbilical cord was attached to the upper margin of the opening, and through the aperture abdominal viscera were protruding. The most important content of this hernial protrusion was a large, thick-walled, fluctuating sac, occupying the lower half of the projecting mass. Transverse colon was recognised above, and between this and the fluctuating sac one or two coils of small intestine peeped out. Each of the projecting viscera was of a bluish-black colour and covered by inflammatory lymph. There was no hernial sac present when the fœtus arrived at the museum. On examining the perineum it was found that there was no anal, vaginal, or urethral orifice present. In the position of the external genitals were two low loose folds of skin, one on each side of the middle line, and united behind resembling a scrotum much more than labia majora. The folds were afterwards found to contain fat. Labia minora, hymen and clitoris were to all appearance absent. In the middle line between these imperfectly formed labia, and rather nearer their anterior than their posterior end, was a well-marked perineal dimple. The deepest part of the dimple was covered by smooth, shining skin, and from it arose the peduncle of a pear-shaped bladder (see photograph No. 1). This bladder or vesicle was thin walled, of a purplish-brown colour, and possessed a moist and glistening surface. It was translucent and moderately tense with

fluid contents. Its length from its attachment to its most dependent part was 2 inches, and the breadth of its broadest part was $\frac{3}{4}$ of an inch. Overlying the sacrum and coccyx was a large pad of fat of a triangular shape, the apex of the triangle being towards the perineal depression. There was no evidence of any median furrow representing a gluteal cleft. On dissection, a very interesting condition of the pelvic viscera was revealed. The urinary bladder was identified and lay in the lower part of the hypogastric region. There was no evidence of a patent urachus. The bladder was opened on its anterior surface, and clear urine at once began to escape. At the same time the thick walled sac which projected into the umbilical hernia, and which passed down behind the urinary bladder, began to diminish in size. This sac was then opened and was found to be full of clear, straw-coloured fluid, identical with and continuous with the contents of the normal urinary bladder. The urinary bladder contained about two ounces of urine, whereas the large sac behind it contained six ounces. The communication between the two urinary reservoirs admitted a No. 8 urethral bougie, and was situated immediately below and internal to the opening of the right ureter. The left ureter opened into the bladder close to the ureteral opening of the right side. The bladder wall was considerably hypertrophied, being 5 millimetres in thickness. Both ureters were dilated and hypertrophied, their lumen admitted a No. 14 urethral bougie. The hypertrophy was due to an increase of the muscular tissue of the ureter. The wall of the ureter was 4 millimetres in thickness. The kidney on each side was normal; they showed neither dilatation of the kidney-pelvis nor any change in the histological structure of the kidney substance. The urethral orifice of the bladder was situated about half-an-inch in front of the orifices of the ureters.

On passing a No. 6 urethral bougie along the urethra from the bladder, it was found to pass freely for a distance of $1\frac{1}{2}$ inches beyond which point it would not advance. In this position the tip of the bougie was found to lie immediately behind the bottom of the perineal dimple. It was then ascertained that the fluid contents of the translucent cloacal sac, which measured about one ounce, could be squeezed out along the urethra into the bladder. Microscopical sections were made of the wall of the perineal sac and of its pedicle up to the point where it was attached. It was very disappointing to find that the tissue of the sac wall and peduncle was undergoing a degenerative change very much allied to coagulative necrosis, due no doubt to its increasingly deficient blood supply. The photomicrographs of this sac are not satisfactory for this reason, and they reproduce very inadequately the appearances revealed by a careful perusal of the microscopical sections. I am quite satisfied that this

sac was lined both inside and outside by an epithelial layer. The outer surface is lined by a stratified layer of cells of considerable thickness. The outlines of the cells are very indistinct in many places. Low papillæ are seen in certain positions. Within this layer and immediately beneath it are glandular spaces lined by a single layer of epithelial cells. Many of these acini open upon the surface (see photo-micrograph Fig. 4). The inner surface of the sac is lined by very irregular cells sometimes in one layer, generally in several layers (see photo-micrograph Fig. 5). The tissue lying between the two epithelial layers consists of a loose fibrous stroma, containing a few bundles of non-striped muscle. The pedicle of the sac consists of fibro-muscular tissue lined on the outside and on the inside by epithelial layers similar in all respects to that just described. The photo-micrograph Fig. 6 is taken across the central point of the pedicle and represents the central canal, lined by epithelium and surrounded by a layer of fibrous tissue, and outside which is fibro-muscular tissue.

On opening up the large sac which lay posterior to and communicated with the bladder, it was found to be bi-locular, the two loculi communicating by a canal admitting the index finger. The upper loculus which projected through the umbilical deficiency was oval in shape, being $2\frac{1}{4}$ inches long and 2 inches wide. The lower loculus, slightly the larger, was $2\frac{1}{2}$ inches in a vertical diameter. The loculi are well seen in photographs No. 2. The upper loculus, as I will show presently, is the right half of a double uterus, and the lower loculus is the dilated vagina of the same side.

On examining the upper loculus it was found that its internal surface was studded with low nodular elevations most numerous towards its summit. Passing along the entire length of this loculus are two well-marked raphe, one on the posterior and one on the anterior wall, the posterior raphe is rather nearer the middle line of the body than the anterior. The posterior raphe is seen in the photograph. Both raphe extend from the small aperture into which has been inserted a small rod, downwards as far as the oblique ridge immediately below the inter-locular constriction. From each longitudinal raphe oblique furrows pass outwards similar in all respects to those in the normal cervical canal of the uterus. Microscopical sections of the wall of this upper loculus show the following characters:—

The internal lining membrane consists of a single layer of spheroidal or flattened cells; this, however, is wanting in certain situations. This inner surface presents eminences consisting of loose areolar tissue and depressions, both lined by the same layer of cells (see photo-micrograph No. 7). No racemose glands have been seen. Lying subjacent to the epithelial layer is a loose layer of

areolar tissue containing lymph spaces and thin-walled blood-vessels. The nodular elevations are largely composed of this tissue. Subjacent to this loose areolar tissue is the non-striped muscular tissue of the sac, arranged in transverse, oblique and longitudinal lamellæ. External to the muscular coat is a layer of loose areolar tissue whose meshes are everywhere engorged with blood, a circumstance which accounts for the bluish black appearance of this exposed part of the hernial content.

The average thickness of the wall of this upper loculus was 5 millimetres. The lower loculus was wholly inside the abdomen and situated in the hypogastric region. In contrast to the upper loculus it was of a pinkish colour. Anteriorly it was covered by peritoneum, posteriorly it was related to the promontory of the sacrum and overlooked the brim of the pelvis; this aspect was devoid of a peritoneal covering. The internal lining membrane of this loculus was smooth, and there were no evidences of anterior or posterior columnæ rugarum. The most dependent part of this lower loculus was just within the upper strait of the pelvis immediately behind the trigone of the bladder. At this point also it comes into close relation with the vagina of the opposite side, from which it was separated by a thin, semi-transparent membrane. Sections were made of this membrane, and it was found to consist of a thin layer of fibro-areolar tissue lined on each side by stratified squamous epithelium (see photo-micrograph No. 8). The wall of the lower loculus, except at this inter-vaginal point, had an average thickness of 5 millimetres. It consisted of the following layers from within outwards, an irregular layer of stratified squamous epithelium, non-striped muscle in transverse and longitudinal lamellæ, a loose layer of areolar tissue, and outside all a single layer of single squamous epithelium representing peritoneum. Passing backwards and outwards from the apex of the upper loculus is a normal Fallopian tube. This represented the Fallopian tube of the right Müllerian duct. It was about 2 inches long and was bound firmly down to the posterior surface of the upper loculus. Close to the free end of this tube and adherent to the posterior surface of the upper loculus was a small, elongated, flattened body, about $1\frac{1}{2}$ centimetres in length, which on section proved to be a normal ovary. A probe could be passed into the Fallopian tube from the upper loculus. The opening of this tube is seen in photograph No. 2, and the microscopical appearance of the tube is well seen in the photo-micrograph No. 9.

Immediately to the left of the lower loculus and on a slightly more posterior plane is the normal development of the left Müllerian duct, namely a vagina, uterus and single Fallopian tube. Behind the free end of this Fallopian tube is a normal ovary, 1 centimetre in length. The Fallopian tube on this side is tortuous and has a length

of $\frac{3}{4}$ of an inch. There is no proper fundus to this left-sided uterus, which has a length of $1\frac{1}{4}$ inches and a breadth of $\frac{1}{2}$ inch. The right aspect of this small uterus is adhering to the left aspect of the right vagina. Its position and relations are well seen in the photograph. The cervix of this uterus projects with a typical os into a small vagina. This vagina was a small cavity lying to the left of the most dependent part of the lower loculus or vagina of the right side. On being opened it was found to contain about two drachms of white, creamy substance; its vertical length was 1 inch and its breadth about $\frac{1}{2}$ inch. Its most dependent part was adjacent to the left lateral part of the trigone of the bladder where it ended quite blindly. It was separated from the right vagina by a thin membrane. Into the upper part of this left vagina projected the cervix of this left unicornute uterus, producing fornices quite similar to those in the bicornute uterus. On splitting the cervix of this left uterus, it was quite easy to recognise, with a lens, an anterior and a posterior median raphe, with the typical arbor-vitæ appearance common to the normal cervix. There was no evidence of anterior and posterior columnæ rugarum in the left vagina. The histological structure of the left vagina was similar to that on the right side, the thickness of its wall being 1·5 millimetres. The descending colon ended in a conical blind tube opposite the brim of the pelvis, immediately behind and to the left of the right vagina.

The true pelvis was almost entirely filled up with fat and areolar tissue, the only canal traversing it to any extent being the urethra. From the most dependent parts of the two vaginæ to the perineal dimple there was a distance of $1\frac{1}{2}$ inches entirely occupied by fat and areolar tissue. The true pelvis was conical in type, its outlet being markedly contracted. A dissection was made over the lumbar dimple, but no spina-bifida was found. The inguinal canals were empty.

Summary. To briefly summarise the malformations of the pelvic floor and pelvic contents we found the following:—Complete absence of urethral, vaginal and anal orifices; a single, perineal depression, which was not subdivided into urogenital and anal portions. There was, therefore, no perineal body. Labia majora were present and united behind the perineal depression in a scrotum-like posterior commissure. There was an entire absence of labia minora, clitoris and hymen. From the bottom of the perineal dimple a stalked vesicle arose, whose internal cavity was continuous with the urethra. The urinary bladder was normal except for the vesico-vaginal fistula. The urethra was normal except for the marked narrowing before opening into the perineal vesicle. A complete double uterus and vagina were present. The right vagina communicated with the urinary bladder just internal to the right ureteral opening. The right vagina and uterus were distended with urine. The right uterus

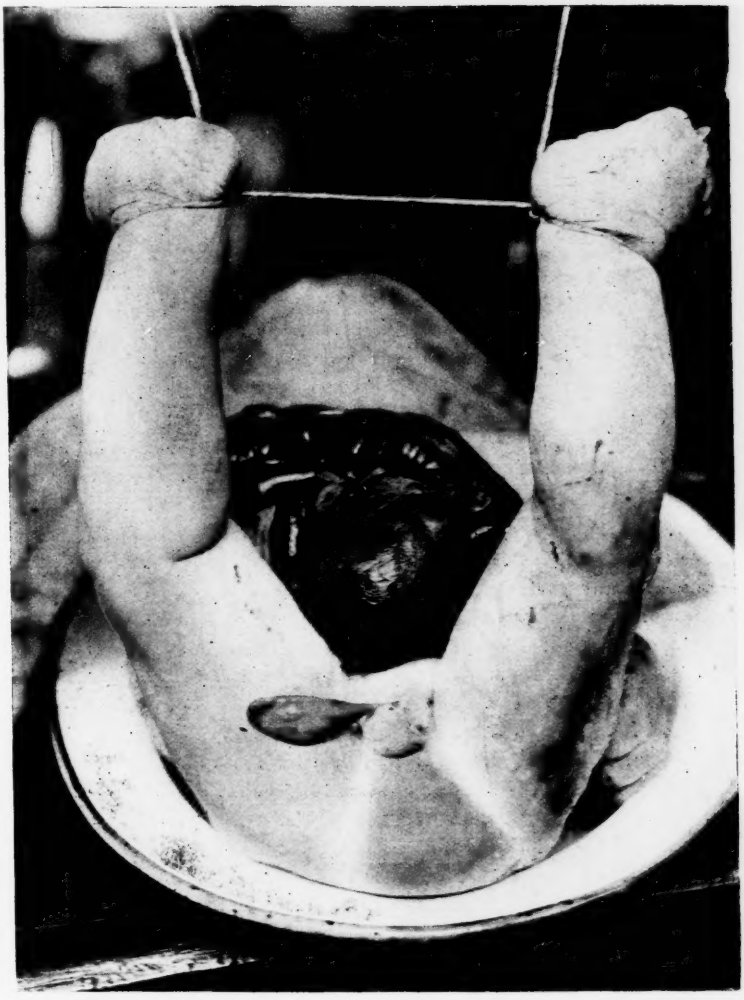


FIG. 1.—Fœtus in lithotomy position, showing perineal vesicle, scrotum-like posterior commissure; umbilical hernia, with upper loculus projecting at lower part; colon above; double talipes, triangular, sacro-coccygeal pad; no gluteal cleft.

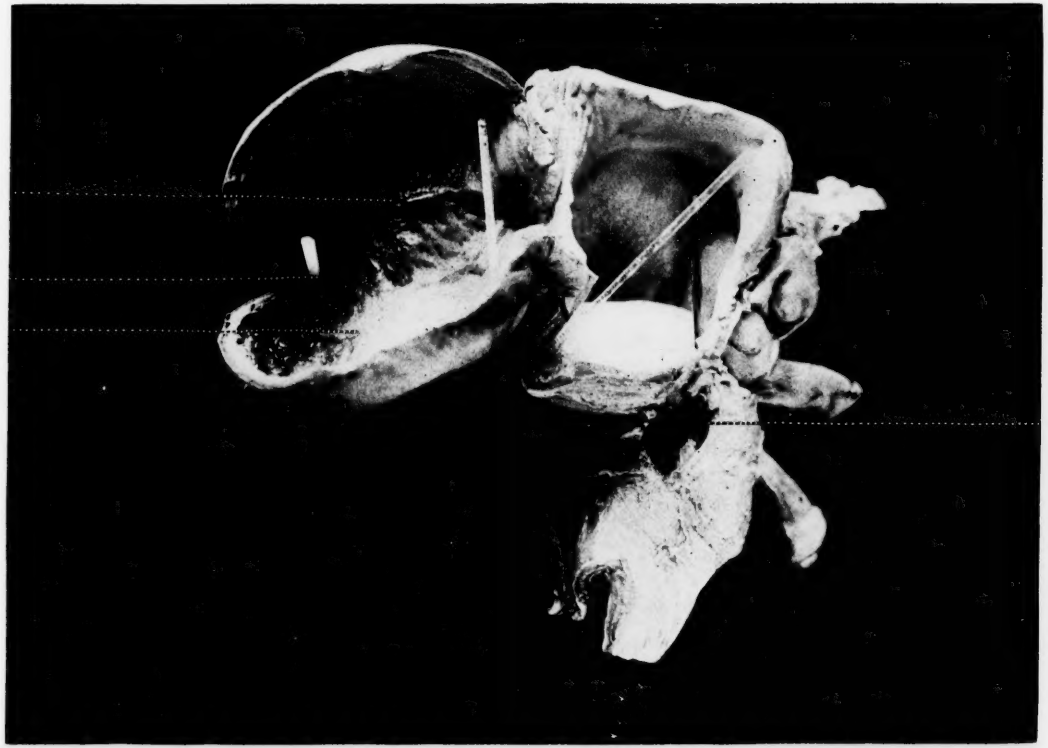

Post-median raphe.
Opening of Fallopian Tube (right).
Right Uterus.
Window in Bladder. Shewing rods in Vesico-Vaginal Fistula and also in Urethra.

FIG. 2.—Specimen shows the posterior median raphe in right uterine cavity, passing from opening of Fallopian tube to ridge between vaginal loculus and uterine loculus.

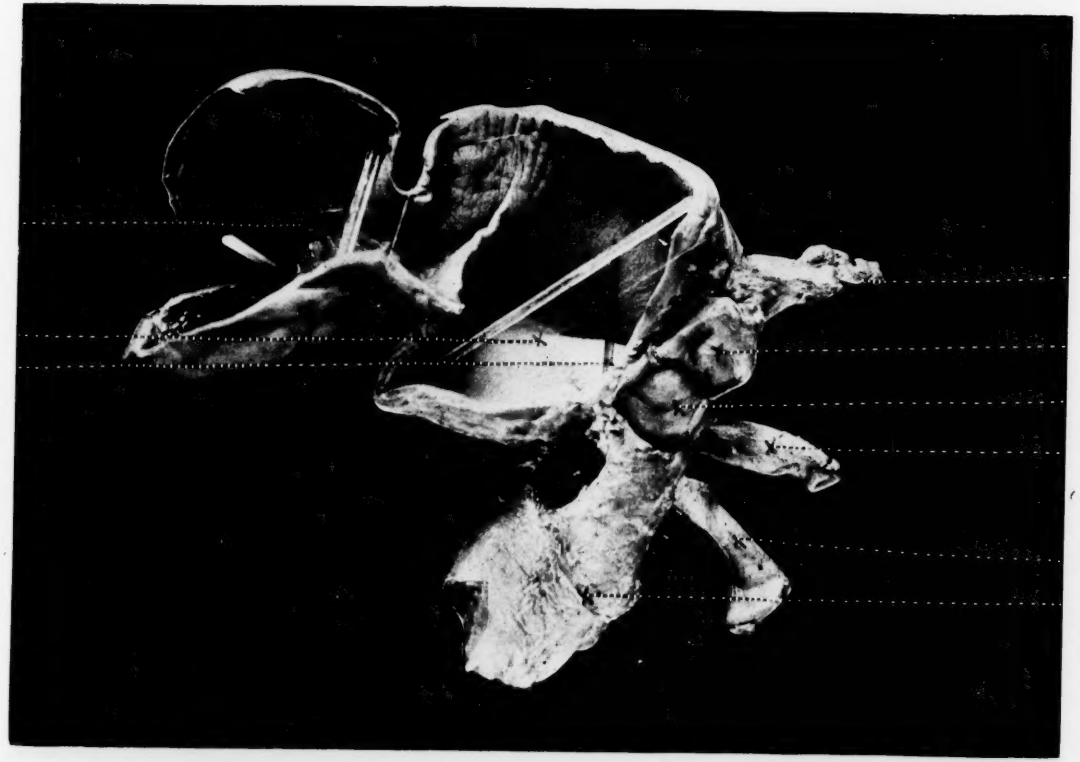


FIG. 3.—Showing bladder, right ureter, left ureter, left vagina, left uterus, left Fallopian tube, right vagina, right uterine cavity with posterior median raphe.

FIG. 4.—Outer surface of perineal vesicle, covered by degenerating stratified epithelium, containing dilated glandular spaces and blood-vessels.

No. 2 ocular, ⅔in. objective, camera extension 40 centimetres.

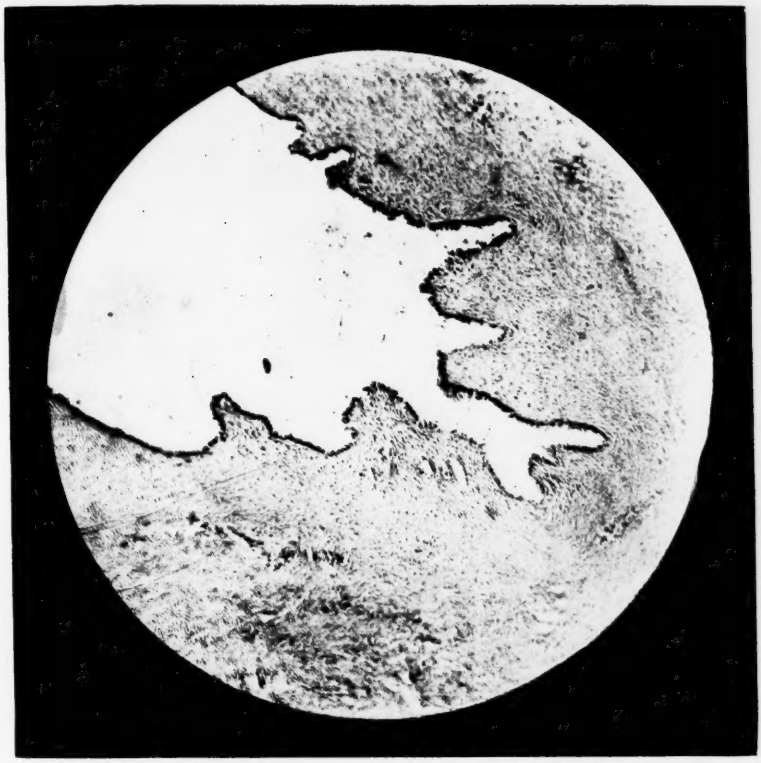


FIG. 5.—Showing the inner lining of the perineal vesicle, consisting of one or more layers of epithelial cells closely adherent to the degenerated fibro-areolar stroma. No. 2 ocular, ⅔in. objective, camera extension 40 centimetres.

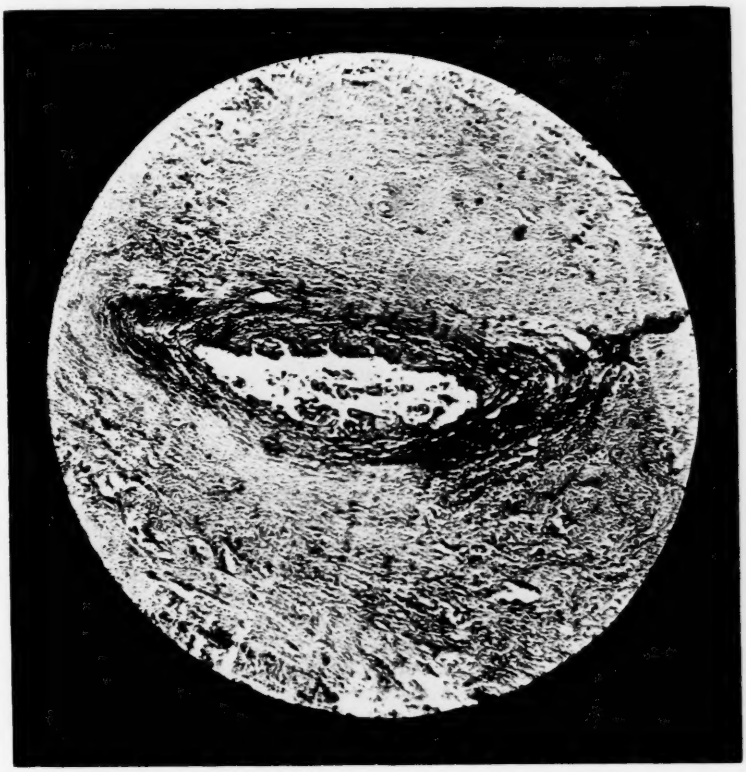


FIG. 6.—Section across the peduncle of the perineal vesicle, showing the small lumen lined by epithelium, which is supported by rather denser fibro-areolar tissue.
No. 2 ocular, ⅔in. objective, camera extension 40 centimetres.

FIG. 7.—Showing the lining membrane of the right uterus (upper loculus); few epithelial cells on surface; loose areolar tissue below, rich in lymph spaces and blood-vessels.

No. 2 ocular, $\frac{2}{3}$in. objective, camera extension 40 centimetres.

FIG. 8.—Section across the inter-vaginal septum. Left vagina to the right, and right vagina to the left, delicate fibro-areolar tissue exists between the two epithelial layers.

No. 2 ocular, ⅜in. objective, camera extension 40 centimetres.

FIG. 9.—Section across the right Fallopian tube at a point one inch from its opening into the right uterus (upper loculus).

No. 2 ocular, $\frac{2}{3}$in. objective, camera extension 40 centimetres.

showed well-marked anterior and posterior median raphe. The left uterus and Fallopian tube were normal, the cervix possessing the usual anterior and posterior median raphe. The left vagina had well-marked fornices, containing a white creamy liquid and ended as a blind tube. Each vagina was lined by stratified squamous epithelium, and their most dependent parts came just within the pelvic brim. The rectum ended as a conical-shaped blind tube just behind the right vaginal wall, and was adherent to it. The remainder of the true pelvis was filled up by fat and areolar tissue.

Remarks. With our present knowledge of human embryology it is not possible to give satisfactory explanations of all the many mal-developments of the case I have recorded in detail; nor, indeed, is it my intention to attempt to indicate the probable embryological processes leading to those malformations, except in those associated with the pelvic floor and pelvic contents. Let us refer to the perineal condition first.

The normal proctodæl or primitive perineal depression is divided into an anterior or urogenital and a posterior or anal depression early in the first month of life, by the ingrowth of lateral septa. These septa uniting with the coronal septa which divide the cloaca into urogenital sinus and rectum, form the perineal body. In this fœtus the proctodæl depression has not been subdivided into urogenital and anal depressions, and for the same reason there is an absence of the perineal body in the proper sense.

The cloacal membrane or plate which ought to disappear between the fourth and the sixth week, first opposite the urogenital sinus and later opposite the rectum, has in this case failed to do so, so that there are no external openings to urethra, vagina or rectum.

About the end of the second month the genital eminence and lateral genital folds make their appearance in relation to the urogenital aperture; the former becomes the glans clitoridis and the latter form the frenum and prepuce of the clitoris, the labia minora and the fourchette. All these structures are either absent or mal-developed in the case before us. This leads me to speak of the probable nature of the perineal vesicle. Two possible modes of formation suggest themselves. Firstly the lateral genital folds may have united by their inner free margins, as indeed they do in the male, and would thus cover in the urethra; a perforation of the genital eminence or glans clitoris fails to take place, thus leaving a blind *cul-de-sac* covered by labia minora and prepuce; a gradual accumulation of urine occurring in this *cul-de-sac* would be sufficient to dilate it and would tend to make it assume its pyriform shape. This explanation, of course, implies a disappearance of the cloacal membrane as far as the urogenital depression is concerned. The second explanation involves a continuance of the cloacal membrane which

indeed becomes the wall of the vesicle. Urine might accumulate in the lowest part of the urogenital sinus or urethra, and this bulging outwards the cloacal membrane gradually and slowly causes it to assume the shape of a pedunculated collection of urine. The histology of the vesicle, I think, is better understood by accepting the first explanation.

* Dr. Berry Hart records a case of a pediculated perineal tumour in a female child, possessing the histological structure of rectum, and which was regarded by him as part of the post-anal gut. The pedicle of this tumour was attached between the vagina and the anus.

The labia majora develop as external genital folds after the third month, and these are represented in our specimen as united behind in a posterior commissure very much like the appearance seen in a male child's scrotum.

In dealing with the pelvic viscera of this case it will be an advantage to trace the probable changes in the cloacal development first.. The hind gut or cloaca begins to show signs of division into an anterior or urogenital portion and a posterior or rectal portion about the third week, the division being complete about the eighth or ninth week. This division is effected by two lateral coronal septa which unite below with the perineal septa to form the perineal body. To render this division of the cloaca a complete one there is a coronal mesoblastic dipping from above which forms in the female the recto-vaginal pouch, and in the male the recto-vesical pouch. What appears to have taken place in the case we are studying, is that the lateral cloacal septa, instead of dividing the hind gut into anterior and posterior portions, have by some malposition cut off the most dependent part in a more or less horizontal plane, and this developing into the urogenital sinus, has left the rectum high up in the pelvis. It is, of course, possible also that the posterior division of the cloaca has shrivelled, and this together with the failure of a coronal mesoblastic dipping to form the recto-vaginal pouch, is sufficient to explain the wide space between the rectum and the perineum.

In considering the developmental destiny of the urogenital sinus it is necessary to remember that in the human subject certain facts have been observed in embryos of certain ages, and that the changes of intermediate periods are still uncertain. It is fairly generally accepted, that from the urogenital sinus are developed the whole of the female urethra, all the bladder except the tip of the fundus, and possibly a part of the lower third of the vagina (Hart). At about the sixth or seventh week the Wolffian ducts open into the back of the urogenital sinus. About the same time the two Müllerian ducts lie in relation to the posterior surface of the urogenital sinus, and are

* *Journal of Anat. and Phys.*, Vol. xxxv.

between the Wolffian ducts. According to certain authorities the Müllerian ducts open into the urogenital sinus also, and into that part which becomes the neck of the bladder. By the formation of a vesico-vaginal pouch and a mesoblastic dipping between urogenital sinus and the Müllerian ducts, these openings are carried lower and lower until they reach the perineal depression upon which they open separately.

The commencing fusion of the Müllerian ducts does not take place until the third month and is not complete until $4\frac{1}{2}$ months. The fusion begins first at the cervix, next in the vagina, and finally in the uterine body. It is thus quite safe to say that up to $3\frac{1}{2}$ months the Müllerian ducts open separately into the urogenital sinus. In the case before us it is quite easy to see that the Müllerian ducts have developed separately and that no fusion of the two has occurred at any point. Furthermore the opening of the left Müllerian duct into the urogenital sinus, if it ever existed, has closed again, whereas the opening of the right Müllerian duct into the urogenital sinus has been maintained and forms a congenital vesico-vaginal fistula situated just internal to the right ureteral opening, the exact relation it bears to the Wolffian duct at the sixth or seventh week. Seeing that no coronal dipping of mesoblast has occurred between bladder and vagina, and no vesico-uterine pouch formed, the two vaginæ have not been carried down to the vulva and so do not open in the urogenital depression.

It is a matter of some interest to find that both vaginæ are lined by stratified squamous epithelium even though placed so high in the pelvis. This would appear to me to still be consistent with Hart's view that the vagina is relined with epithelium derived from bud-like invaginations from the epiblastic Wolffian ducts. Whether the white, creamy fluid, in the left vagina was desquamated and degenerated epithelium, or whether it was of inflammatory origin or not, I cannot say. Another point of some interest in connection with the left Müllerian duct is, that the os-uteri of the left uterus, and the fornices of the left vagina were well formed.

We have hitherto assumed that the median raphe of the cervical canal represented the line of fusion of the two Müllerian ducts. It is therefore a matter of some surprise to find that these median raphe are present in both of these uteri in spite of the fact that each is developed from a single Müllerian duct where lines of fusion could not account for them.

Before leaving this interesting specimen I would like to say that the vesico-vaginal fistula might conceivably be of a traumatic nature, consequent upon the gradual accumulation of urine in a bladder that had no proper outlet, and which had burst into an adjoining vagina. This possibility, however, is to my mind most unlikely in face of the

tremendous hypertrophy of the right vaginal wall which, I think, indicates a very gradual distension with which hypertrophy kept pace. That it could not be an inflammatory accumulation in the right vagina which had burst into the bladder is proved by the absence of inflammatory deposit in the clear urine found, and the absence of any inflammatory appearances in the microscopical sections examined. I am, therefore, of opinion that this is a true congenital fistula which can be explained by the persistence of that primitive communication between the Müllerian ducts and the urogenital sinus which is established about the sixth or seventh week of intra-uterine life.

In conclusion I wish to thank Professor Leith, who kindly placed the material of the museum and the technique of the Pathological department at my disposal.

REVIEW OF CURRENT LITERATURE.

OBSTETRICS.

Ovariotomy during Pregnancy.

HEIL (KARL). *Münch. med. Wchnschr.*, January 19th, 1904.

IN this paper the author describes five cases of ovariotomy during pregnancy, and tabulates with them similar cases recorded recently in the literature, making 66 in all. The table is arranged on the same lines as and in continuation of those of Orgler (*Archiv. f. Gyn.*, Bd. 65, p. 126) and Gräfe (*Münch. Med. Wchnschr.*, 1902, No. 43, and 1903, No. 28); thus bringing the number of cases under consideration up to 241. Of this large number the percentage of deaths which can be ascribed to the operation is only 2·1, showing that the complication of pregnancy does not add appreciably to the risk. Premature labour as a consequence of the operation occurred in 19·47 per cent. of the cases. These results strongly support Pfannenstiel's position that the best treatment is to operate as soon as the diagnosis of ovarian tumour in pregnancy has been arrived at. Certainly in those cases where the diagnosis lies between ovarian tumour and intra-uterine pregnancy on the one hand, and extra-uterine pregnancy on the other, there ought to be no hesitation about the necessity for immediate operation. Where it is possible to leave the Fallopian tube on the side from which the tumour is removed, this ought to be done in order to minimise the disturbance of the pregnant uterus as far as possible. For the same reason, the abdominal route is to be preferred to the vaginal.

J. S. FAIRBAIRN.

Modified Porro Operation.

WAGNER (CARL). *Amer. Jour. of Obstet.*, February, 1904.

THE author has operated upon three cases in which it was necessary to perform Cæsarean Section, and in which it seemed inadvisable that that the uterus should be left behind. He has employed on each occasion, with very satisfactory results, the following modification of Porro's operation:—

After opening the abdomen, the next step consists in tying the ovarian artery and quickly stripping down the broad ligaments at

the sides of the uterus. Instead of proceeding as usual by tying off the uterine artery on both sides and then forming a cuff, which must be caught up with pressure forceps as the knife is carried round the uterus, a procedure which sometimes necessitates the use of many forceps, and is accompanied by considerable hæmorrhage, "it occurred to me that with the introduction of a very simple feature work could be much facilitated, time saved and absolute control of hæmorrhage ensured. Whilst the assistants lifted up the uterus with some traction, I grasped the elongated cervix with my left hand from behind very firmly, compressing it tightly; then I placed four forceps, one on each side, one in front and one behind, right over my hand in the tissue of the uterus. These forceps were inserted there for the purpose of serving first as a land mark for the incision, second as levers to lift up the stump after amputation, and to prevent the stump from slipping out of my hand. With the scissors held in a slanting position, the outer blade higher than the inner, I amputated the uterus with a few sweeping heavy strokes, whilst the assistant, the moment the uterus was opened, introduced his finger to hold back the head and membranes. By holding the scissors in this position and keeping the inside blade in careful contact with the mucous membrane of the uterus I avoided injury to the head and membranes and I had a conical stump which allowed a very easy adaptation. The closing of the stump was a very easy task then, as I held it still firmly and conveniently for work in my hands."

HERBERT WILLIAMSON.

The Bad Effects of Deep Incisions in the Cervix during subsequent Delivery.

HOFMEIER. *Münch. med. Wchnschr.*, 1904, No. 3.

PROFESSOR HOFMEIER records two cases in which serious consequences followed the adoption of incision of the cervix, as recommended by Dührssen, in a previous labour. In the first case four deep incisions had been made and delivery effected by forceps. In the present labour, the cervix did not open and had to be artificially dilated, first with sounds and the fingers and then with Frommer's dilator. The child being dead, the head was perforated and delivery completed. In the second case the patient had two normal confinements after the one in which the cervix had been incised, but at the fourth died from an incomplete rupture of the uterus through the scar of one of the old incisions.

The writer considers that the deep cervical incisions, and

especially the lateral ones, are not as harmless as Dührssen would have us believe. In the second case the hæmorrhage at the time of the original incisions was so profuse, that had not all the resources of the clinic been at hand, she would undoubtedly have bled to death. In private practice the consequences would have been terrible. The effect of the incisions in the later confinements must make the value of this method very doubtful. In those cases where it cannot be avoided it would appear best to incise the cervix anteriorly and posteriorly so as to lessen the danger of dividing large vessels.

J. S. Fairbairn.

The Treatment of Hæmorrhage after Labour.

Fritsch (Heinrich). *Deutsch. med. Wchnschr.*, 1904, No. 1.

Fritsch lays great stress on the necessity of adopting one definite method of treatment for these cases of hæmorrhage, so that valuable time is not lost by trying first one and then another of alternative plans. With regard to atonic bleeding, this is often due to hasty and unskilful massage of the uterus, and perhaps the worst cases the practitioner is called to are those where a midwife has attempted expression and failed. It is often surprising how easily the placenta—which has become fully separated in the meantime—is expressed, while owing to anæmia the uterus remains atonic, just as was seen in Cæsarean section when the rubber tourniquet was used, causing prolonged anæmia of the uterus. In atony of the uterus, the organ should be compressed to express clot, and then firmly anteflexed over the pubes, whilst a graduated compress of towels or such like, is packed down on the abdominal wall behind it, and kept in place by a roller bandage or tight binder. This may be left on for twelve hours. It does not cause the pain which might be expected; little urine is usually secreted, but if there is any discomfort a catheter can be passed. As soon as the binder is secured, the head may be lowered, and infusion and other methods of restoration adopted. Among the advantages claimed for this method of treatment are:—(1) The complete control of all bleeding, for the uterine walls are firmly pressed together and its cavity is obliterated. (2) The effect of pressure on the aorta and of bandaging the legs is obtained. (3) No time is lost, as in a tamponade and in methods requiring disinfection. (4) Extra-vaginal methods are always preferable when there is need of haste.

Hæmorrhage from extensive tears in the lower uterine segment is rare, but may cause a fatal termination, especially in cases of placenta prævia, eclampsia, etc. Suture of these lacerations is very difficult, especially when only the unskilled help of a midwife can be obtained, and when done often does not fulfil its purpose. They may extend deeply into the parametrium at the side of the cervix—the external os and vaginal wall sometimes remaining intact, whilst two joints of the finger may be passed in without reaching the limits of the wound. They usually run in front of the uterine artery, but when that vessel is fixed by an old scar, it may be laid open. Fatal hæmorrhage may also occur from involvement of the ramus vaginalis. If the portio is drawn down with volsella in order to suture the rent, the uterus comes down but not the parametrium, and the deepest part of the rent in the connective tissue remains above. Any attempt to encircle the tear with a curved needle is dangerous owing to the risk of including the ureter. The writer maintains that bleeding is stopped by suture only in cases where it would have ceased without it, and that this is not theory but the result of observation in the post-mortem room.

The tamponade is uncertain, for it is not always done well enough and quickly, and much blood is lost during the manipulations and afterwards into the gauze, and it does not prevent extensive extravasation into the tissues. He himself has seen a large hæmatoma extending along the ureter right up to the kidney. The treatment recommended for these cases is as follows:—Standing on the left side and resting the elbow on the bed, the labia majora are grasped in the left hand, pressed firmly together and the whole pelvic floor pushed up into the pelvis as far as possible. In a recently delivered woman the vulva is relaxed and this is not difficult. Meanwhile the right hand presses the anteflexed uterus deeply into the pelvis, and the bleeding surface is compressed between the two. This pressure can be kept up for half or three-quarters of an hour; the lower hand does not tire, but if the upper one gets fatigued the midwife can put two hands over it and continue the pressure. Finally a sandbag, or other convenient substitute of about three kilos in weight, replaces it, and then the pressure from below is withdrawn. In this way very extensive hæmorrhage can be controlled in a few minutes.

Among the advantages of this method are:—(1) The bleeding surfaces are pressed together so that there is no space into which bleeding can take place, whilst clotting and thrombosis soon stop further loss. (2) It is so quickly carried out that no loss occurs during the manipulation as in suture or tamponade. (3) The whole

thing is extra-vaginal, so that the risk of infection is avoided. (4) No after treatment is necessary.

Fritsch does not claim that these methods are altogether new, nor does he pretend to priority, but urges them as the best adapted for the teaching of midwives. The midwife can adopt them while awaiting the arrival of the doctor, and can do no harm. The paper is a very instructive and suggestive one and is well worth study.

J. S. Fairbairn.

Puerperal Infection treated by the Provocation of Suppuration by Turpentine Injections.

Oui (M.). *L'Écho Médical du Nord*, January 10th, 1904.

Fochier has advocated the treatment of certain infections (puerperal, typhoid, pneumonia, etc.) by causing local abscess formation by the subcutaneous injection of essence of terebinthine. Oui records one case in which this method was adopted for puerperal infection. On the sixth day the patient had high fever with rigors, and as this continued after curettage and frequent intra-uterine douching, a subcutaneous injection of 2cc. of essence of terebinthine was made in the right buttock. The temperature slowly subsided after this, and a few days later the abscess at the site of injection was evacuated. This was followed by a recrudescence of the fever to about 105°F. with rigors and severe constitutional disturbance. A few days later (twenty-third day of disease) a second injection was made, this time intra-muscular, on the outside of the right thigh. The abscess in this case developed very slowly, and for over a week the fever and rigors continued. The patient's condition began to mend about the forty-third to forty-eighth day, and shortly afterwards the abscess in the thigh, which now extended from just above the knee to the upper third of the limb, was evacuated, when the temperature at once dropped and the patient made a rapid recovery. The pus from the second abscess was found to contain streptococci.

In discussing the treatment the author states that it was not carried out as vigorously as Fochier advises. According to him, further injections ought to be made every day till the abscess formation was marked, for the absence of local reaction is of very grave significance. Also the first abscess was opened too early, as indicated by the fresh outburst of symptoms, while in the second, which was not evacuated till a decided improvement had occurred, the incision

was followed by a rapid recovery. The writer recognises the difficulty of advocating this treatment, but thinks it is possible that as its efficiency depends on the suppuration, it may be explained by the phagocytosis excited and by the abscesses diverting and neutralising the toxines of the original disease.

J. S. FAIRBAIRN.

Formalin Treatment of Puerperal Sepsis.

HOERSCHELMANN. *St. Petersburger Med. Wchnschr.*, 1904. Vol. xxix., No. 4.

IN a severe case of puerperal fever in a negress Barrows, of New York, made intravenous injection, into the arm, of 500cc. of a fluid consisting of one part of formalin to 5,000 parts of normal saline solution. Her temperature fell from 41·7°C. to 38·3°C. On the second and third day the temperature again rose and streptococci were found in the blood. The injection was repeated, 750cc. of the same solution being used. The temperature and pulse then fell to normal within a few hours and rapid recovery followed. Barrows also treated a white woman successfully by the same method.

The writer describes a woman, aged 24, who was seven months pregnant, when fœtal movements ceased. After feeling ill for some days she expelled some discoloured liquor amnii and was admitted to hospital, and was shortly delivered of a macerated fœtus, followed by stinking liquor amnii and a putrid placenta. The next day the temperature was 40·2°C. and the pulse rate 148. Treatment was without effect, and after the patient had been very ill for four days it was decided to give an enema containing formalin. Eight drops of Schering's formalin were added to 600cc. of normal saline solution, and the whole was injected in the rectum, a quarter of the amount being expelled 10 minutes later. Two hours later the temperature was 40°C. and the pulse 123. Profuse sweating followed and six hours later the temperature was 37·1°C. and the pulse 103. The patient had diarrhœa for some days but recovered. The writer attaches no undue importance to an isolated case, but urges extended trial of the method. He suggests the use of enemata consisting of about half a pint of water with half a teaspoonful of common salt and five drops of Schering's formalin. It should be remembered that the ordinary formalin of commerce is a 40 per cent. solution of formaldehyde, while the writer states that Schering's formalin contains only four per cent. of formalin.

W. E. FOTHERGILL.

Puerperal Gangrene of the Extremities.

Wormser (E.). *Wiener klinische Rundschau*, January 31st and February 7th, 1904. Vol. xviii., Nos. 5 and 6.

In 1900 and 1901 Wormser collected from the literature all the cases he could find of puerperal gangrene of the lower extremities. Since then he has come across Sir James Y. Simpson's paper on the same subject written in 1854. He has now been able to collect 80 cases, 58 of gangrene in the lower extremities in the puerperium, eight of post-partum gangrene of other parts of the body, seven of gangrene during pregnancy, and seven of Raynaud's disease before or after labour. He arranges these cases into three groups according to their ætiology:—

1. Puerperal cases, by far the largest group.
2. Cases occurring during pregnancy.
3. Cases of Raynaud's disease.

1. The cause here is infection during or shortly after labour. Whether the gangrene be due to extensive thrombophlebitis, endarteritis obliterans, or embolism, puerperal infection must be looked on as the cause, so much so that the term "puerperal gangrene" is more applicable to these cases than "gangrene during the puerperium."

2. Gangrene occurring during pregnancy. Out of seven cases the condition of the heart is noted in four. In two of these the heart was normal, in the other two there was valvular disease. Wormser considers that the connection between pregnancy and gangrene is accidental rather than causal.

3. The occurrence of Raynaud's disease during pregnancy or after labour is probably only a coincidence.

There were 66 cases of true puerperal gangrene, 58 of the lower extremities, in two of which there was only superficial necrosis of the skin, and eight of the upper extremities, parts of the face and skin of the trunk either alone or combined. Five out of these eight cases died. The cause seems to have been septic endarteritis or embolism from diseased cardiac valves. In Eichhorst's paper on gangrene of the extremities after scarlet fever and other infectious diseases, there are reported 42 cases of gangrene following typhus, more than after any other infectious disease. Wormser shows that typhus must take second place to puerperal infection as a cause of gangrene.

Age seems to play no part in the causation of the condition.

Great number of pregnancies with many varicose veins cannot be looked on as a predisposing cause. The obstruction may be in the arterial or venous systems or in both. In 18 cases it was only arterial, in nine only venous, while in 13 cases both arterial and venous clots were found. Obliteration in the arterial system may be due to embolism, arteritis or thrombosis. Thrombosis of the lower extremity arises from a spreading thrombosis which begins in the terminal branches of the uterine artery in the placental site and spreads up into the common iliac arteries and even into the aorta. Hochstetta explains his case of bilateral gangrene as being due to implication of the aorta. Arterial thrombosis may also be secondary to venous obstruction and the consequent stagnation of blood in the arteries. Obliteration of veins is due to phlebitis or thrombosis.

In the majority of the cases the gangrene began between the sixth and fifteenth days after labour. The right and left legs were affected in an equal number of cases. In 16 cases the gangrene reached up to the thigh, in 23 affected the leg, and in 13 was confined to the foot. In many cases the toes and heels exhibited dry gangrene while the dorsum of the foot, ankles and legs were in a condition of moist gangrene with large blebs. In 24 cases amputation was performed; 18 of these patients lived and six died. In 30 cases no amputation was performed. All these patients died. The total mortality was 66·6 per cent. The mortality since 1875 is only 46·8 per cent.,showing the effect of antiseptics. The prognosis in the cases of arterio-venous origin is shown to be better, according to statistics, than in those of purely arterial or purely venous origin.

HENRY RUSSELL ANDREWS.

A Study of the Caloric Needs of Premature Infants.

MORSE (JOHN LOVELL). *American Journal of Medical Sciences*, March, 1904. Vol. cxxvii., No. 3.

THE author has studied from the point of view of the quotient of energy the feeding of six premature infants. All were fed on modified cow's milk of definite percentages prepared at the Walker-Gordon Laboratory. The composition of the food being known it was easy to calculate its caloric contents. The amount of food taken at each feeding was carefully measured. The caloric value was calculated on the basis that one gramme of sugar or proteids equals 4·1 calories and one gramme of fat 9·3 calories. After drawing attention

to, and criticising, the results of different workers in this field, the author gives a full account of his cases and comes to the conclusion as a result of his figures that the caloric need of premature infants is relatively greater than that of full-term infants. This greater need being due in part to the small size and comparatively large surface area of premature infants which cause them to lose heat faster than larger or full-term infants, and partly to the incomplete development of their digestive powers, on account of which they utilise a relatively smaller proportion of the caloric value of the food ingested. This conclusion emphasises the importance of protecting premature infants against loss of heat and of providing for them a food which will throw the least work on the partially-developed digestive powers.

COMYNS BERKELEY.

A Clinical and Pathological Account of some of the Injuries to the Eye of the Child during Labour.

THOMSON (W. ERNEST) and BUCHANAN (LESLIE). *Ophthalmological Society's Transactions*, Vol. xxiii.

IN their introductory remarks the authors state: "The term congenital is frequently applied to various conditions of the cornea, choroid, retina and eye muscles, because we are as yet in ignorance of the true cause of these defects; but it is our opinion that many of them may be due to traumatism at birth. Such, for example, are some corneal opacities, possibly certain cases of dislocation of the lens and of cataract, almost certainly some cases in which pigmented or atrophic patches are found in the fundus and at least a proportion of cases of amblyopia from damage to the optic nerve or its sheath or to the retina." After an exhaustive review of the literature, six original cases are given in detail, the obstetric history and the ocular conditions being fully described. The injuries observed are as follows:—

CASE I. Difficult forceps delivery in a case of contracted pelvis; traumatic keratitis of both eyes.

CASE II. Study of the injuries to the eyes in a craniotomy case; traumatic keratitis, retroversion of ocular contents, various hæmorrhages.

CASE III. Difficult forceps delivery; still-born child, various intra-ocular hæmorrhages.

CASE IV. Difficult forceps delivery; still-born child, traumatic keratitis and hæmorrhages.

Case v. Symphysiotomy and axis-traction forceps; after delivery the left eye was found hanging on to the cheek and attached only by the conjunctiva and external rectus; these injuries were the result of a depressed fracture involving frontal and parietal bones. Traumatic keratitis of the right eye was also present. The child lived.

Case vi. Difficult forceps delivery in a case of contracted pelvis; depressed fracture of right frontal bones, ecchymosis of conjunctiva and small retinal hæmorrhages.

The commonest lesion is traumatic keratitis, and all the cases observed have been the result of difficult labours, and all except one have followed forceps delivery. With regard to prognosis, two forms must be distinguished, the one a slight evanescent form probably due only to œdema of the cornea and passing off in a few days, whilst in the other and more severe form a more or less permanent opacity sooner or later succeeds this initial haze. This secondary opacity is probably due to the formation of scar tissue in the situation of a rupture of the posterior elastic lamina. The careful pathological study which follows belong rather to domain of ophthalmic surgery than to that of obstetrics.

Herbert Williamson.

A Case of Fœtal Peritonitis with Congenital Malformation.

Bothmann. *Zentral. für Gynäkol.*, 1904, No. 5.

The child was born at term, the mother was aged 26, and had had six normal labours and two abortions. At the birth, after delivery of the head with forceps, the trunk could not be extracted on account of abdominal swelling. The abdomen was opened by cutting through the thoracic wall and diaphragm with scissors. Two or three litres of fluid were drawn off through this opening by means of a catheter. Extraction was then easy. There was extensive fœtal peritonitis. The circumference of the abdomen measured 73cm. At the autopsy the peritoneal cavity still contained one and a half litres of clear golden fluid. In the region of the genitals a cystic tumour with two horns was seen. This consisted of two uteri and two vaginæ, quite separate the one from the other and both were distended with fluid. The tubes and ovaries were normal as was also the bladder. The rectum was dilated and ended in a blind extremity which lay between the two vaginæ. There was no anal orifice externally. The vagina was closed from the outside and the labia, especially the lesser pair, were hypertrophied and

œdematous. The author regards the malformation as secondary to the peritonitis, but it is difficult to see how such a lesion could influence the invagination of the proctodœum.*

CUTHBERT LOCKYER.

Deportation of Chorionic Villi and its Consequences.

VEIT (J.). *Zentral. für Gynäkol.*, 1904. No. 1.

CHORIONIC EPITHELIUM, and often the connective tissue of the villi, extend into the maternal veins, even from an early period of gestation. This mechanical process admits of various interpretations. Veit holds to his conviction that these chorionic elements reach the blood stream by deportation, or displacement, and that in this process of deportation there is no destruction or injury to the veins and maternal tissues by the fœtal structures. With reference to the destructive action attributed to normal fœtal elements, Veit grows more and more sceptical.

The writer says anyone may satisfy himself that deportation is a fact by cutting serial sections through the serotinal surface of a fresh placenta. Under normal conditions examples of deportation are few, under pathological conditions they are frequently to be observed. In reference to the results of such "deportation" Veit mentions that they may be classed as results already proved and those still hypothetical. There are first, the purely mechanical consequences, *e.g.*, thromboses of the serotinal veins, which are more or less filled with cells which Friedländer and Leopold regarded as having wandered in from the neighbourhood, but which are now, the writer affirms, considered as identical with chorionic epithelium. These thrombi do no harm; communication with the veins in the deeper layers of the serotina prevents stasis of venous blood.

The second result, hypothetical perhaps, is the expansion of the intervillous spaces. Veit cannot prove this in uterine placentation, but in the wide veins of the pregnant tube he found villi which were still in direct union with the ovum, whilst the veins they occupied were in no sense injured; their endothelium was completely unchanged. The most obvious supposition is that such veins occupy a transitional stage between the first-mentioned (thrombosed) and the intervillous spaces, that is to say, the villi within the veins gradually convert the latter into intervillous spaces. Now *if* this transformation occurs in ectopic pregnancy it probably does so *in*

* The malformations mentioned in this case resemble those described by Dr. Hewetson (*vide* p. 349), although their significance appears to have been missed by the author. ED.

utero. The supposed destruction of maternal tissues by the ovum, described by Hofmeier in connection with the cleavage of the decidua vera, is really a mechanical distension of the veins in the neighbourhood of the intervillous spaces by the peripheral growth of deported villi and the gradual investment of the area by decidua.

Again, the deportation of villi is well demonstrated in placental polypi. In such a structure maternal veins, filled with living villi are found, *i.e.*, fœtal tissues surrounded by maternal. This means that the villi have penetrated into the deeper maternal veins, and have there continued to live after the abortion of the ovum. Veit is convinced that deportation of villi into decidual veins is a frequent *cause* of the formation of placental polypi. Serial sections through tissues which are not destroyed by secondary hæmorrhages must be made in order to prove this, and Veit says the suitable tissue is recognised after curetting, by its dark, reddish-black colour, shining through the bluish scrapings.

According to the writer adherent placenta and placenta disseminata have a similar explanation in the deportation of villi into the decidual veins. Occasionally the villi are deported from the serotinal veins into those within the muscular layer of the uterus, and here they are only removable if the veins open unusually widely into the intervillous spaces. A further effect is seen in the premature separation of the normally situated placenta. Façee Scheffer found in such a case that the sinus circularis was blocked by villi. This blockage of the sinus circularis, through which blood passes from the centre of the cotyledons, means that blood collects between the villi, and that the veins between the block and the intervillous spaces rupture, and this brings about premature separation of the placenta.

Veit states that the furious hæmorrhage in ruptured tubal gestation has to do with the plugging of veins by deported villi, the deportation being greater and the venous anastomosis less than in uterine gestation. What happens in tubal gestation is that between the ovum and the block in the vein there is blood stasis until the veins rupture, and then the arterial blood flows directly through the intervillous spaces into the peritoneal cavity. Veit further hints that spontaneous rupture of the pregnant uterus is very probably associated with blocking of veins by deported chorionic villi.

That " certain cases " of penetrating vesicular mole demonstrate deportation of villi there can be no doubt. Vesicles can be found in the veins identical with those in the uterine cavity. The vesicular villi which, on their outer surface, show an atypical epithelial growth,

remain anatomically benign even when deported into the wall of the uterus. Indeed, such villi spread still further into the paravaginal veins, and whilst in the uterus they soon cause hæmorrhage, they may remain for a longer time in the paravaginal tissues (without so doing), and the longer they remain the greater is the overgrowth of their epithelium. They are here clinically quite benign although histologically they may appear malignant. Such cases have driven Veit to regard deciduoma malignum as a uterine sarcoma. Paravaginal vesicular mole is due to deportation of villi from a diseased ovum, the original cause for this particular vesicular disease of the ovum is still unknown.

CUTHBERT LOCKYER.

GYNÆCOLOGY.

Proliferating Ovarian New-growths Originating in Lutein Cells.

GROUZDEW. *Archiv. für Gynäkol,* 1903. Bd. lxx.

VOIGT has described a case of Porro's operation in a twin pregnancy, performed on account of malignant ovarian tumour. This growth was as large as a man's head, was solid and of soft consistence. Its capsule covered a peripheral layer 1—3cm. thick which contained a good deal of blood. The growth had a homogeneous central portion, yellowish grey in colour, which, on microscopic examination, was found to represent an enlarged corpus luteum. Scholler and Pförringer found in a multipara, aged 32 years, a hydatid mole together with multiple cysts formed from spurious corpora lutea. These differed from the better known retention cysts of the corpus luteum in that portions of them showed energetic proliferation of the lutein cells, and were undergoing a sort of "carcinomatous degeneration." The ovary measured 11 by 9 by 4½cm. and formed a solid mass with numerous peripheral cysts.

The writer describes a third case in which proliferation of lutein cells was observed, but which differed in that it arose apart from any pre-existing recent corpus luteum. The patient was 60 years old, and had ceased to menstruate for 10 years. She had had 14 pregnancies. Vaginal discharge and hæmorrhage with hypogastric pain led to the discovery of a much enlarged uterus, and small irregular solid growths of the ovaries. The uterus and appendages were removed, but the patient returned to hospital six months later with recurrence—a mass of new growth in the omentum, the peritoneum studded, lymphatic glands enlarged, and ascites. The left ovary contained masses of proliferating lutein cells. The structures

are well figured and described, and the writer determines that they must be regarded as a form of malignant new growth. Since the weight of opinion now regards the lutein cells as derived from the theca interna and not from the membrana granulosa, the writer considers that the growth is a sarcoma and not a carcinoma. He suggests the name sarcoma ovarii cysticum luteino-cellulare.

W. E. FOTHERGILL.

Contribution to the Surgery of Pyosalpinx.

COFFEY (R. C.). *Annals of Surgery*, October, 1903.

AFTER separation of the pus sac the author exsects the tube by a V-shaped incision in the uterine cornu, which is afterwards closed by a continuous catgut suture. The ligament is tied off in three or four sections and divided. The stumps are then closed in by another continuous suture through the folds of peritoneum on each side, so that the raw surface is entirely covered. The suture is then taken through the surface of the posterior uterine wall, so as to bring the raw stumps in contact with the back and sides of the uterus. In this way the ovary and raw surfaces are all turned into the cul-de-sac, are sheltered by the overlying peritoneum from adhesions, and all broken areas are brought within the cul-de-sac, within easy reach in case of infection or accumulation of matter. Owing to the tendency to retroversion in many of these cases, a knuckle of round ligament may be brought back and stitched to the posterior and lateral surfaces of the uterus, thus retaining it in a good position. Drainage is only necessary in acute cases. It is best effected through the cul-de-sac by means of rubber tubes and gauze wicks. The paper contains several very good illustrations of the methods described by the author.

JOHN S. FAIRBAIRN.

Operations for Prolapse and their Ultimate Results.

JACOBY. *Archiv. für Gynäkol.*, 1903. Bd. lxx., Heft 3.

THESE statistics were obtained in Breslau from 1894 to 1901. The operations used are minutely described. There were 257 cases, 199 of which have been followed up. The paper is very arithmetical in character. The writer considers that the principles upon which the operative treatment of prolapse should be conducted are as follows:—The choice of operation must be determined upon the merits of each

case. Prolapse of the posterior vaginal wall following old perineal tear should, as a rule, be treated by repair of the perineum without any special posterior colporraphy. When there is prolapse of the anterior vaginal wall, anterior colporraphy should be added. Rectocele and cystocele demand special consideration. Ectropion, cervical lacerations and hypertrophies should be treated by conservative plastic methods; amputations being reserved for exceptional cases. Retroflexions and versions should always be corrected, the Alexander-Adams method being used for this purpose. In bad cases in old women extirpation of the uterus is allowable.

W. E. FOTHERGILL.

The Scientific Basis of Conservative Operations for Uterine Fibroids.

WINTER (G.). *Zeits. für Geburts. und Gynäkol.*, 1904. Bd. li., Heft 1.

WINTER complains that the choice between conservative and radical operations for uterine fibroids is too often looked upon as being a mere matter of taste, instead of being decided on scientific grounds. Many operators seems to perform conservative operations through a blind adherence to "conservative principles" rather than with a view to leaving a uterus which can become pregnant or at least continue to menstruate.

In comparing the relative merits of the two classes of operation the following points must be considered:—

1. How does the patient benefit by retaining her uterus?
2. Is she as certainly freed from her troubles by a conservative operation as by hysterectomy?
3. Which operation gives the better immediate results?

In reply to the first question it may be said that she benefits in three ways; by continuance of menstruation, the possibility of pregnancy, and freedom from the troubles of the menopause. The occurrence of menstrual molimina after removal of the uterus with retention of the ovaries is rare, and there is not always any psychical effect produced by the stoppage of menstruation. The fact that the patient will cease to menstruate after removal of the uterus cannot therefore be looked on as being of great importance. Winter gives a list of 30 cases in which pregnancy occurred after a conservative operation, showing that conception may occur after removal of any variety of uterine fibroid. After enucleation of large fibroids pregnancy very rarely occurs, because in these cases there are changes in the endometrium, in the uterine muscle, and frequently also in

the appendages. Again, after an extensive operation, there are often adhesions formed which must diminish the chances of conception. It was hoped that menopause troubles would be avoided if one ovary was left behind when the uterus was removed. The observations of Abel, Burkhardt, and Werth show that this is by no means always the case. Even when both ovaries are left behind menopause troubles may be expected to occur prematurely in about 12 per cent. of cases.

Recurrence is not uncommon after conservative operations and the necessity for a subsequent radical operation must be looked upon as a proof of failure. As regards pain, bleeding and various other troubles due to fibroids, the results of conservative operations will not bear comparison with those of radical operations. The immediate results also of conservative operations are undoubtedly worse than those of radical. The conservative operation of removal of a fibroid from the uterine cavity by the vaginal route is the safest. The simple removal of a sub-peritoneal fibroid can also be considered to be without danger to life. The enucleation of partly sub-peritoneal and partly interstitial fibroids, however, involves a mortality of almost 9 per cent., and in 25 to 30 per cent. of cases some trouble may be expected in the healing of the wound. The danger connected with enucleation of true interstitial fibroids cannot yet be judged with certainty; theoretically it is the most dangerous of all operations for fibroids. Most submucous fibroids, and also pedunculated sub-peritoneal fibroids if the uterus contains no others, should be treated by conservative operation. Other cases if operation is indicated, should as a rule be treated by radical operation. In a few cases a conservative operation may be performed if the patient lays great stress on the continuance of menstruation.

The last part of the paper, which occupies about 100 pages, discusses conservative operations in pregnancy, by means of which the life of the child may be preserved. Winter is convinced that better permanent results are obtained by myomectomy during pregnancy than in the non-pregnant state.

HENRY RUSSELL ANDREWS.

Intra-peritoneal Enucleation of Uterine Fibroids.

BATIGUE (P.). *La Gynécologie*, February, 1904.

BATIGUE reviews the opinions of many distinguished operators—Martin, Témoin, Richelot, Tuffier, Villard, etc. He first discusses the question of bleeding from the cavity left behind when the fibroid

has been enucleated. To control this bleeding Martin applies an elastic ligature round the cervix. Témoin compresses the broad ligaments by forceps guarded by indiarubber. Richelot and Tuffier regard this hæmorrhage as being trifling and unimportant in the majority of cases. Villard considers that hæmatomata are frequently formed, occasionally at some little time after the operation, and are likely to become infected.

Tuffier incises the uterus in the middle line either anteriorly or posteriorly and enucleates as many fibroids as possible by means of a single incision. Richelot and many others make incisions, over the most prominent part, of as many fibroids as it is necessary to remove. The objection to this method is that if it is necessary to remove many fibroids the uterus is left in a ragged condition. Tuffier makes a great point of bringing all the resulting raw surfaces together as carefully as in a perineorrhaphy. It is best to dilate the cervix at the beginning of the operation, and to cleanse the uterus either by lavage or by curetting. If this is done the danger involved in opening the uterine cavity is not great. Many operators, however, prefer to drain the uterine cavity through the cervix if the endometrium has been wounded. The possibility of recurrence is the great objection to myomectomy, and has helped to prevent the operation from being more generally adopted.

HENRY RUSSELL ANDREWS.

Hydatid Cysts of the Broad Ligament and Great Omentum.

SAVARIAUD. *Rev. de Gynécol. et de Chirur. Abd.* November-December, 1903. No. 6.

SAVARIAUD removed a true hydatid cyst of the right broad ligament together with the uterus from a woman aged 30. The operation was very difficult and it was feared that portions of the cyst had been left behind. It had not involved the ovary or tube. Some months later it was found that a second abdominal tumour had formed. This proved to be a hydatid cyst of the great omentum. It was removed. True hydatid cysts of the broad ligament are very rare; much more so than hydatids of Douglas's pouch. Savariaud can only find seven such cases of hydatids of the broad ligament recorded.

G. DRUMMOND ROBINSON.

Retro-Peritoneal Cyst of the Wolffian Body; Splenectomy; Excision of Tail of Pancreas.

MONPROFIT. *Gazette Médicale de Paris*, March 12th, 1904.

THE patient, a woman, whose age is not given, had been subject for eight years to abdominal pains and a tumour had been observed for about six years. It grew slowly at first, then more rapidly, and at length the patient had attacks of vomiting though there was little emaciation. The tumour reached about three inches above the umbilical level and could be detected as low as the pelvic tissue; the uterus, on bimanual palpation, was found to be high up, but it moved quite separately from the tumour and the fornices were free. An abdominal incision was made and then a tumour with a smooth, white surface was exposed. On tapping five litres (about eight and three-quarter pints) of a syrupy brown fluid came away. The enucleation of the cyst wall was easy until its upper part was reached, but that portion was closely blended with the tail of the pancreas and the spleen. The pancreas was ligatured close to its tail and divided, the spleen had to be removed, nearly eight inches of the splenic artery extremely dilated, were closely incorporated with the cyst-wall at its upper border. The uterus, ovaries and tubes were not seen during the operation. The patient recovered. The tumour was quite distinct from the tissue of the spleen and pancreas. It was multilocular and "small cystic pouches" containing white mucoid material were detected near the point of insertion of the tail of the pancreas on the wall of the cyst. Nevertheless, Monprofit declares that the tumour was not of pancreatic origin, as proved by microscopic examination. He ranks it as a development from the upper part of the Wolffian body, the pronephron, which is at first above the metanephron or permanent kidney. This class of cyst, very rare, is quite distinct from the common broad ligament cyst derived from the mesonephron or Wolffian body proper. He quotes authorities who have described other cases and remarks that the most complete work on the clinical aspect of cysts of the Wolffian body is Nedkoff's "Thèse de Montpellier," 1897.

Monprofit's case is of some importance; its relation to the pancreas was remarkable. The fact that the uterus, ovaries and tube were not seen during the operation, though the uterus had been previously defined by bimanual palpation, must not be forgotten. The present writer has dwelt on retro-peritoneal tumours in relation to the female organs in an article on "Retro-peritoneal Lipoma

weighing 13lb. 12oz." in this *Journal*, Vol. ii., p. 244; also in his first Harveian Lecture (*Lancet*, 1903, Vol. i., p. 350, paragraph headed "Fibroid or Fibro-myoma of the Broad Ligament.") For displacements of kidney and spleen, a kindred subject, see Pozzi, "Rate en ectopie pelvienne avec torsion du pédicule" (*Rev. de Gynécol. et de Chirur. Abd.*, 1903, Vol. vii., p. 918), with Delbet's reference, in a discussion on this case, to a patient who appeared to be suffering from inflammation of the right tube, but the "tube" proved to be a contracted and atrophied kidney enveloped in the folds of the broad ligament. There was a pelvic kidney in the writer's case of retro-peritoneal lipoma. It is of some interest to study Œlsnitz and Rouillier's "Anomalies de rapports et d'irrigation du rein" in the *Bulletin et Mémoires de la Société Anatomique de Paris*, June, 1903, p. 540, where the right kidney (in a male subject who had died of meningitis) lay in the median line. A remarkable anastomosis, by a large vessel, was established between one of the two renal veins proceeding from this kidney, the vena cava and the portal vein. The left kidney was normal, as was the course of its vein. Anomalies in the position of viscera and in vascular supply seem common in association with retro-peritoneal tumours.

ALBAN DORAN.

Tuberculosis of the Urinary System in Women. Report of 35 Cases.

HUNNER (GUY L.). *Bulletin of the Johns Hopkins Hospital*, January, 1904. Vol. xv., No. 154.

THIS paper deals chiefly with diagnosis:—

Age. The disease is one of young adults, average age thirty-one years and a half.

Family history. In 13 out of 28 cases a family history of tuberculosis was obtained.

Past history. There may be a possible manifestation of tuberculosis in other organs, or a history of diseases which may have left kidney lesions as a "locus minoris resistentiæ" for a later attack by the tubercle bacillus.

Clinical history. The extremes of existence of the symptoms are two months and seventeen years, with an average of four years and a half.

Physical condition. The general condition varied very markedly, some cases presented a picture of health with a high percentage of

hæmoglobin others were brought into hospital looking nearly dead. The two chief factors contributing to a desperate condition of the patient appeared to be first a diseased kidney which was not draining freely, and second irritation of the bladder disturbing the patient's rest at night.

Physical examination. Important indications are:—Tenderness of the kidney, tenderness and a desire to void urine on pressure on the ureter, which is often felt thickened, as it crosses the brim; (per vaginam) tender uterovesical region and a thickened ureter, which can nearly always be felt beginning at its vesical junction just anterior to the cervix and coursing outward and backward.

The patient may be kept in bed a week, the temperature noted and the tuberculin test applied, and lastly the examination of the urine will give a positive diagnosis. Do not examine 20 or 30 slides a day, but two slides a day for a week or more, during which time there is likely to be a shower of bacilli from some freshly broken down focus of the kidney disease. If the tubercle bacilli are not found fresh urine may be centrifugalised and a small quantity injected into a guinea-pig's peritoneal cavity. If but one supply is available inject several guinea-pigs, some abdominally, some cutaneously as the colon bacillus, which is so often present in tuberculous urine very often kills the animal. In 15 out of 22 cases tubercle bacilli were found.

A diagnosis should be made without the cystoscope, this is an extremely valuable instrument, but there are many abuses in connection with its use, one of the most important being the catheterisation of supposed healthy kidneys through infected bladders. A summary of the cases is given together with a few details as to treatment and results, and the author comes to the following conclusions:—

1. Urinary tuberculosis in women is a disease of early adult life.

2. It is usually primary in the kidney, although about half the patients complained first of bladder symptoms.

3. It is confined to one side in the vast majority of cases.

4. The disease should be kept in mind in dealing with any symptoms referable to the urinary tract.

5. Appendicitis and gall-stone colic must be differentiated. Any obscure case of supposed malaria or typhoid fever should remind one of the disease.

6. The disease is compatible with a long life of comparative health and in some cases there is a tendency to spontaneous healing.

COMYNS BERKELEY.

What value has the knowledge of Pseudo-Hermaphroditism for the Practitioner?

VON NEUGEBAUER (FRANZ). *Interstate Medical Journal*, February, 1904. Vol. ii., p. 103, No. 2.

UNDER the above heading Dr. Neugebauer points out the frequency with which surgeons make mistaken diagnoses of sex in these cases. Many a supposed girl has been operated on for a hernia that in reality proves to be merely the delayed descent of the testicle. Similarly other operative mistakes have been made. The author, therefore, warns against any radical measures before the sex has been determined. In the course of the paper, which is lengthy, Dr. Neugebauer specially draws attention to the following:—

That the cause of pseudo-hermaphroditism in man can only be sought in those centres that determine and regulate development. That in all likelihood nutritive conditions associated with the arrangement of the arterial blood-supply are an important factor in the final cause of hetero-sexual evolution, that a psychic influence in development cannot be gainsaid, also hereditary influences inasmuch as the same kind of hemaphroditism has been found repeatedly in father, son, grandson, and in two, three, or four children of the same parents.

Of great importance is the variety of sexual feeling in hermaphroditism, at times being perfectly normal, at times absent or slightly developed, and at times perverted.

In the development of the psycho-sexual centre the greatest influence is played by education, example and suggestion; the character of the psycho-sexual feeling frequently depending on the circumstances and surroundings in which the person has been raised. The mental condition may be perfectly normal; it is often, however, diseased, and certainly in many cases there is a relationship between the sexual malformations and the diseased mental condition.

The author has collected 68 cases where marriage was concluded between people of the same sex. Many hermaphrodites have come into conflict with the courts on account of rape, assault, adultery, incest, malpractices on children, and sodomy. Frequently the most careful microscopical investigation of the sexual glands, whether removed by an operation on the living or on an autopsy, is, on account of rudimentary development, unable to establish the sex. In the majority of cases the sex becomes evident at the time of puberty. In difficult cases it is best to follow the advice of Lawson Tait to

leave the sex undecided and have the person for the time being brought up as a girl.

If organs corresponding in size, shape, and consistency to testicle, epididymis and seminal ducts be found in the lateral folds or higher up at the opening of the inguinal canal, one can be assured that the sex is male. If it is impossible to feel testicle or epididymis in the new-born the only proper thing is to postpone the decision even to as late as puberty or demand a diagnostic operation. The surgeon should always pay particular attention to every case of inguinal hernia appearing early or late in a girl.

The author has collected 33 cases where either benignant or malignant tumours particularly of the sexual organs were associated with pseudo-hermaphroditism. The surgeon must be careful in operating; in many cases the mother asks him to remove the hypertrophic clitoris, in doing which he may be robbing a male hermaphrodite of his sexual organ.

COMYNS BERKELEY.

Teratoma Testis Resembling Chorio-epithelioma.

EMANUEL. *Zentral. für Gynäkol.*, 1904, No. 5.

THE tumour developed in a man, aged 28 years, and within a space of three months caused death by its extreme dissemination. Secondary growths were found in the right lung, in the liver, in the retro-peritoneal glands, and in the pancreas. In the glands along the inferior vena cava a tumour developed the size of a man's head and nearly filled the abdomen. The main microscopical features are summed up as follows:—

1. Epithelial tissue resembling tubular glands and arranged in places in papillary fashion.

2. Typical chorio-epitheliomatous tissue composed of syncytial masses and clear, sharply defined Langhans' cells. This was best seen in the deposits in the liver.

3. The greatest variety of cysts lined by cylindrical, goblet and cubical cells, and in other cases with *layers* of cylindrical epithelium.

4. Fibrillary connective tissue, in places infiltrated with round cells.

The author describes his specimen as a teratoma of the testis in which, through some special proliferation of the ectoblast, both carcinomatous and chorio-epitheliomatous tissues have developed. Emanuel states that Schlagenhaufer was the first to show a specimen of this kind, and that in all 14 cases have been published. The

occurrence of these chorio-epitheliomatous growths in teratomata of the testis is a fresh proof of the correctness of Marchand's view that chorio-epithelioma in women is developed from the fœtal ectoblast.

Another point is proved by these teratomata, viz., the histogenetic identity of the two layers which invest the chorionic villi—syncytium and Langhans' layer, inasmuch as in these growths the question of maternal tissues is excluded.

CUTHBERT LOCKYER.

Chorio-epithelioma in the Male.

VON HAUSEMANN. *Zentral. für Gynäkol.*, 1904, No. 5.

THIS case related to a man, aged 28 years. The testis on the right side had been removed by Holländer for a tumour, but the patient died within seven weeks of the operation, with extensive metastases. The primary growth had a dark reddish-black colour and there were deposits in the cord at the time of operation. At the autopsy, extensive growths were found in the lungs and in the retro-peritoneal glands, besides some deposits in the liver and spleen. Collectively the growths were so characteristic that the diagnosis of chorio-epithelioma could be made on naked-eye examination alone. They appeared as blood clots of various ages, surrounded and penetrated by slender shreds of grey connective tissue. In lymphatic glands lying in the bifurcation of the aorta, cysts had developed and these contained a blood-stained serous discharge. These cysts were lined by cubical and cylindrical epithelium and afforded a positive conclusion as to the teratoid nature of the growth. The grey strands above alluded to as seen in the blood-clot proved to be chorio-epitheliomatous tissue, *i.e.*, syncytium and Langhans' cells. The bulk of the tissue was made up of fibrin and blood-clot infiltrated with leucocytes.

CUTHBERT LOCKYER.

REPORTS OF SOCIETIES.

OBSTETRICAL SOCIETY OF LONDON.

Meeting, 20, Hanover Square, W., March 2nd, 1904, the President, DR. MALINS, *in the Chair.*

Dr. HANDFIELD-JONES showed two specimens of *unruptured tubal gestation*, both at about the seventh week. In one case death had occurred owing to severe hæmorrhage which had poured out from the open end of the tube. In the other case only a couple of drachms of blood had escaped into the peritoneal cavity. In both cases much blood-clot was found in the distended tube surrounding the ovum. The desirability of early operation in these cases was advocated.

Dr. CULLINGWORTH asked whether an examination under an anæsthetic had been undertaken in the case that died, and remarked on the injury likely to be caused during manipulation.

Mr. HARRISON CRIPPS and Dr. HERBERT WILLIAMSON read a paper on TWO CASES INVOLVING THE QUESTION OF THE SITE OF IMPLANTATION OF THE OVUM.

I. A case in which, after complete removal of the right ovary, gestation subsequently occurred in the right tube. There are but two posible explanations of this phenomenon—(1) the presence of an accessory ovary on the right side; (2) external migration of the ovum. These two possibilities were discussed in some detail, and the conclusion arrived at was, external migration of the ovum was the more probable. Two similar cases recorded in the literature were quoted.

II. A case in which a patient became pregnant after both Fallopian tubes had been ligatured; to prevent subsequent conception the abdomen was reopened and a portion of each tube excised. In spite of this the patient again became pregnant. Similar cases from the literature were quoted, and the manner in which the ovum traversed the distended tube was discussed. The bearing of these two cases upon the ætiology of tubal gestation was briefly indicated.

Mr. ALBAN DORAN observed that in respect to Case I., he considered that the existence of ovarian tissue on the same side as the Fallopian tube fully explained the subsequent pregnancy. External migration seemed to him less probable. In regard to Case II., it was not necessary to assume that the continuity of the entire canal of the partially excised tube must be restored before the tube could resume its functions. These two opinions were supported by the published reports of authentic cases of pregnancy after double ovariotomy. Mr. Doran removed a cyst of the right ovary fourteen years after the left had been amputated for cystic disease by Dr. Robert Barnes, and noted complete atrophy of the pedicle on the left side. Yet the patient bore a child to term two years later. The remains of the right tube and a trace of ovarian tissue on the right side proved sufficient to allow of impregnation; external migration was not possible. Stansbury-Sutton, Baldwin, S. C. Gordon, M. M. Morris and Anderson Robertson reported cases where both ovaries and tubes were amputated for cystic or inflammatory disease, yet the patients bore children afterwards. The stump of one tube had become patent (ligatures seldom closed mucous canals securely), and thus an ovum was conveyed from ovarian tissue to the uterine cavity. It followed that in partial excision

of the tube for the induction of sterility, restored patency of the uterine portion was sufficient to defeat the operator's aims.

Dr. WILLIAMSON said that, though he appreciated the justice of Mr. Doran's criticism, in this particular case he was still in favour of external migration of the ovum. Here we were not dealing with an ovarian cystoma nor with inflamed appendages. A smooth, rounded, pedunculated dermoid tumour was discovered at the first operation; there was no difficulty in removing it, and it was improbable, on the face of it, that the removal was incomplete. Moreover, the possibility of such condition was discussed at the second operation, and a careful search failed to reveal anything like the remains of an ovary. Further, a very thorough examination was made of the specimen after removal, again with a negative result. Mr. Doran very rightly distinguished between ovary and ovarian tissue, but in this case neither ovary nor ovarian tissue could be found. Migration of the ovum must be regarded as an established fact. That being so, it was reasonable to believe that such was the explanation of the pregnancy in this case.

Dr. EDEN said that he agreed in the main with the views advanced by Mr. Alban Doran. He thought it was impossible by any clinical examination, however careful, to exclude the presence of small portions of ovarian tissue in the ovarian pedicle or between the layers of the broad ligament. Only by an exhaustive examination made at an autopsy could the exclusion be satisfactorily accomplished. He therefore regarded the first case recorded by the authors as affording no support to the theory of external migration of the ovum. With regard to the second case, he thought the method employed by the author was faulty. Ligature of the base of a loop of the tube left the divided ends in juxtaposition, and when the ligature had been absorbed the lumen might easily be restored. He had twice sterilised a patient with a satisfactory result by the following method:—Two silk ligatures were applied to the tube about 1½ inches apart, the intermediate portion was then cut away, and each end closed over with peritoneum in the way surgeons closed over the stump of the vermiform appendix. He did not think it was possible for the lumen of the tube to be restored after this operation.

Dr. HERMAN thought there was abundant evidence that the ovum might traverse the peritoneum from one ovary to the opposite tube. There was also some evidence that an ovum might traverse the uterus and get from one tube into the other.* Knowing that ligature of the tube did not ensure sterility, he had endeavoured to sterilise patients after Cæsarean section by removing the tubes altogether, tying the stumps close to the uterine cornu, and so far he had not heard of any patient so treated becoming pregnant.

The PRESIDENT said that his experiences in some cases of Cæsarean section and myomata had shown the difficulty of efficient sterilisation by ligaturing the Fallopian tubes. Simple ligation and even cutting out a piece of the tube had been proved to have failed in the object sought. It had been shown that the best method was to excise a wedge-shaped piece of the broad ligament including the tube, near to the cornu of the uterus. In case of Cæsarean section this plan could be more readily carried out when the incision in the fundus has been made transversely instead of the usual longitudinal one.

* See Hassfurther, quoted by Leopold, *Archiv für Gynäkol.*, Bd. xvi., S. 27, and Schaeffer, *Zeits. für Geburts.*, Bd. xvii., S. 13.

Dr. GALABIN said that he was interested in the demonstration given in the paper that the method of excising a portion of each tube was not an absolutely certain one of preventing future pregnancy. In future he should add to his plan of excising in conical shape the mucous membrane of the end of the tube left attached to the uterus, the application of a stitch to close the opening. But he had not yet met with any case of pregnancy in patients whom he had treated in this way. He thought with the authors of the paper that external migration of the ovum was much the more probable explanation of their first case. He thought that this view was really supported by the cases quoted by Mr. Doran, in which pregnancy had recurred after the removal of all the tubes except the small stump left attached to the uterus. If such a stump without any fimbriated extremity could produce enough ciliary current in its neighbourhood to pick up the ovum, it seemed still more likely that when the fimbriated extremity was intact it might readily attract an ovum of the opposite side, which had escaped just beyond the range of the ciliary current of the tube of its own side. Such an occurrence was probably not uncommon.

Dr. BOXALL said that even in healthy conditions of the pelvic organs he found no difficulty in accepting the possibility of transmigration of the ovum in the abdominal cavity from the ovary on one side to the tube on the other. The relation of the parts *in situ*, with the abdomen unopened, was very different to what was observed either on the post-mortem table or at an operation. With the pelvic organs and intestines closely applied in what was under ordinary circumstances during life a potential cavity only, it was quite easy to imagine how the ovum, floating about like a drop of oil, might readily find its way from one ovary to the abdominal ostium of the Fallopian tube of the opposite side, and so be swallowed, or, for the matter of that, find its way into an opening in the tube which had resulted from its severance.

Dr. CULLINGWORTH said that he was about to make a very similar remark to that made by Dr. Boxall as to there being no great difficulty in accepting the theory of external migration of the ovum. In view of the numerous cases in which, when operating for inflammatory disease of the uterine appendages, the appendages of the two sides were found united to each other behind the uterus, he would go even further than Dr. Boxall, and say that the ovaries and abdominal ostia of the Fallopian tubes not only lie within a much more contracted area than appears to be generally supposed, but are not infrequently in actual contact. If it be said that in the operation cases alluded to the conditions are those of disease, he would reply that the position of the parts was not likely to have been altered by the disease, and that there had probably already been contact where there was now actual adhesion. Writers spoke of the ovum travelling across the peritoneal cavity, and conveyed the impression of a long and almost inconceivable journey, whereas the ovum might merely have to step in next door.

Mr. HARRISON CRIPPS replied.

Mrs. FLORENCE N. BOYD read a paper on TWO CASES OF ABDOMINAL HYSTERECTOMY FOR FIBROIDS, COMPLICATED BY PREGNANCY; WITH SPECIMENS.*

Mr. ALBAN DORAN believed that hysterectomy early in pregnancy was the safest cure when the fibroid sprang from the posterior part of the inferior uterine segment. He alluded to a specimen illustrating this

* See page 315.

condition which he had exhibited a few years ago before the Society. The uterine cavity lay between two fibroids. Had the lower been pushed out of the pelvic cavity the uterus might have been burst like a soft fruit pressed between two stones. He exhibited three similar specimens also from his own operative practice. In two the cervix was involved, and in the third the tumour had opened up the broad ligament. The danger of attempting to push up an encapsuled tumour was obvious. All four patients had recovered and were free of an organ which had functioned badly and had been a source of danger. He had removed the ovaries in three of these cases (ages 40, 39, 30), and the menopause had immediately followed without disagreeable symptoms. In the fourth (age 30) he saved these organs; periodical hæmorrhages from the cervix followed and ceased abruptly at the end of a year; then the patient suffered for a few months from flushings.

Dr. HERBERT SPENCER showed a specimen of degenerated fibro-myoma weighing over 17lbs., enucleated from the broad ligament nine hours before delivery at term. The child was born dead, but seemed quite fresh. It was 21 inches long, and weighed 6lbs. 2ozs. The mother, who was 41 years of age, and had had four children previously, made a good recovery. Dr. Spencer remarked that, although he had seen a considerable number of pregnancies complicating uterine fibroids, this was the only case but one in which he had found it necessary to operate during pregnancy. Tumours which encroached on the pelvis in the early months were often drawn up at the end of pregnancy or in labour. He was of opinion that operations in the early months and mutilating operations were by far too frequently performed in cases of fibroids complicating pregnancy. The specimen showed that even at full time a very large tumour might be successfully removed by the operation of myomectomy. He had no doubt that both the cases shown by Mrs. Boyd required operation, but thought that in the second case it would have been better to wait and see whether the pregnancy could not be allowed to continue until the child was viable or even developed to term. Whether the uterus should have been removed in that case was perhaps doubtful, but in the case of a pedunculated tumour, such as in one of Mr. Doran's cases, he thought the conservative operation of myomectomy was preferable.

Dr. AMAND ROUTH spoke strongly against operative interference in the early months of pregnancy unless very urgent symptoms were present, especially as two lives were involved and all interference must be surgical, myomectomy or hysterectomy, the induction of abortion being unjustifiable for obstructing fibroids. It was impossible to be sure fibroids would cause obstruction at full term, and even if they did so, operation then was just as easy and quite as safe, and a living child was secured. Pressure symptoms were often capable of relief, and were often temporary, and no operation in the early months should be done without a fair trial of suitable treatment. Spontaneous rupture of the uterus was very rare, if not unknown, and Dr. Hogan's case, alluded to by the author, was open to grave doubt. The danger of hæmorrhage, which was mainly post-partum, need not be considered in this connection, and he had never heard of an instance of fœtal deformity in these pregnancies. On the whole, therefore, he strongly urged palliative treatment till near full term wherever possible.

Dr. CULLINGWORTH said the decision in the second of Mrs. Boyd's cases had been arrived at only after the most careful consideration. There was room, of course, in such a case for the difference of opinion, but he could

not help thinking that objectors to the course adopted might have taken a different view had they had the opportunity of seeing and examining the patient. As his paper on the subject showed, he was strongly of opinion that interference with the course of pregnancy in these cases was seldom justifiable, and it was therefore with reluctance that he came to the conclusion that he did. He did not think, in spite of the statistics quoted by Dr. Amand Routh, that it could reasonably be maintained that operation at term was safer than an earlier operation.

Dr. LEWERS said that as regards the two cases of Cæsarean section he had performed for obstruction due to pelvic fibroids, he had seen both cases comparatively early in pregnancy. Both cases had rather severe pain at that period, but it gradually passed off, and during the latter half of pregnancy the patients were very fairly comfortable. He thought it only rarely justifiable in such cases to perform abdominal hysterectomy in the earlier months of the pregnancy. By that treatment the child was of course lost, and the patient had to undergo a severe operation. He thought it much better, when at all possible, to let the patient go to full term, then perform Cæsarean section. In that way the child was almost certainly saved, and the mother underwent no greater risk than if hysterectomy had been performed during the earlier months. He would go further, and say that when the fibroids were wholly or chiefly pelvic, and there was an otherwise fairly normal uterus, the operator should be content with performing a conservative Cæsarean section, leaving the pelvic fibroid or fibroids untouched. In his two cases the fibroids had given rise to no symptoms prior to the pregnancy, and he thought, therefore, that there was a very fair probability that afterwards they would cause no symptoms. He had, therefore, performed a conservative Cæsarean section in both cases, and left the fibroids alone. So far in these two cases a year and a half and 16 months respectively had elapsed since the operation, and he had not heard of the fibroids causing any trouble. In both his cases the children were well-developed and perfectly normal, and had thriven well up to the present.

Mrs. BOYD replied.

BRITISH GYNÆCOLOGICAL SOCIETY.

Meeting, March 10th, 1904, the President, PROF. JOHN W. TAYLOR, *in the Chair.*

For Dr. T. GELSTON ATKINS (of Cork), Dr. H. MACNAUGHTON-JONES exhibited two specimens removed by *hysterosalpingo-oöphorectomy,* and read notes of the cases. The first was one of large bilateral ovarian abscesses nine months after labour, and the patient made a good recovery; the other was one of bilateral papilloma of the ovaries with cancer of the cervix; the woman made a good recovery from the operation, but died from tachycardia on the ninth day.

Dr. WILLIAM DUNCAN read notes of the following cases in connection with specimens:—(1) *Fibroid uterus* removed by vaginal hysterectomy after enucleation had failed; (2) *fibroid of the vaginal wall;* and (3) *uterine myoma* growing between the layers of the broad ligament and completely filling the pelvis; hysterectomy, recovery. In regard to the latter case, he described how he obliterated the cavity after all oozing had been arrested by bringing the sides together with a silk suture, a proceeding which he considered far better than drainage.

Mr. Bowremann Jessett dissented from Dr. Duncan's opinion, preferring in such cases to lead a gauze drain into the vagina through a tube which he withdrew on the second or third day.

Dr. Inglis Parsons showed—(1) a *fibro-cystic tumour of the uterus* from a patient over 40; (2) a *large fibro-myoma of the broad ligament;* and (3) *a submucous myoma,* reading notes of the cases. He suggested that the gelatinous material in fibro-cystic tumours might be due to micro-organisms.

Dr. Bedford Fenwick showed a *small uterus,* the removal of which had been necessary on account of exhausting hæmorhage; in the lower part of the canal there were growths he considered to be myomata, but as it was suggested that they might be malignant he undertook to supplement the case with a pathological report.

The President, Dr. Macnaughton-Jones and Dr. J. J. Macan joined in the discussion.

Dr. Dudley Buxton then read a paper on The Vernon Harcourt Inhaler and Exact Percentage Vapours of Chloroform in Surgical Anæsthesia. He pointed out that the evidence of all pathological and clinical investigations had shown that chloroform, like any other powerful drug, was dangerous in proportion to the dose administered, and discussed in detail the experimental researches of various observers with regard to its effects upon the isolated mammalian heart, and upon the nervous and vaso-motor systems (Sherrington, Sowton, Waller, Rudolph, Embley). With low percentage vapours the dangers these observers had described were not fatal. Clinically, a 2 per cent. vapour was found to be amply sufficient for the rapid induction of narcosis, while an even lower percentage maintained anæsthesia. Cases of an extremely complex and dangerous character which he cited proved this. After a careful comparison of "incomplete" or "irregular" and "light" anæsthesia, Dr. Buxton showed that most of the perils of chloroform arose from incomplete and irregular anæsthesia. He exhibited the inhaler devised by Mr. Vernon Harcourt to supply a vapour of 2 per cent. or any lower degree desired; by using it the "after effects" were lessened while the dangers were minimised. The results obtained by its intelligent employment had proved most satisfactory.

Mr. Mayo Robinson said that from his experience of the Vernon Harcourt inhalers in a large number of serious cases he could confirm all that Dr. Buxton had said in its praise; it would, in his opinion, completely revolutionise the giving of chloroform.

Dr. Macnaughton-Jones, also speaking from experience, said that the induction of anæsthesia with it did not take more time than with the Junker apparatus, nor was it ever necessary to continue the full 2 per cent. vapour to maintain it.

Dr. R. T. Bakewell eulogised the inhaler, especially for children, but explained that it was convenient, on account of the dislike children had to any form of mask, to commence the anæsthesia with a few drops of chloroform on lint.

Mr. Vernon Harcourt said that he had found it better to substitute metal valves for the celluloid ones he employed at first, as the latter were affected by the vapour of chloroform and lost their shape; moreover their action could not be so satisfactorily observed as the less transparent metal. He enquired whether some form of stand to keep the instrument upright, and the interposition of about twenty inches of tubing between it

and the face piece, might not be beneficial in saving the administrator fatigue in long operations or in obstetric cases.

Dr. DUDLEY BUXTON said that to one accustomed to the instrument the fatigue was not great even in long operations, but that such an addition might prove useful in some instances.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Meeting held at Sheffield, Friday, February 19th, 1904, DR. W. J. SINCLAIR, *President, in the Chair.*

Dr. ARNOLD LEA (Manchester) related a case of *fibro-myoma uteri* associated with organic heart disease, treated by abdominal hysterectomy. The patient was a sterile married woman, aged 44, with a history of two years' menorrhagia. The heart was hypertrophied and dilated, and a thrill and a systolic murmur over the apex beat were present. Some slight albuminuria disappeared under treatment, and supra-vaginal panhysterectomy was performed and followed by complete recovery. Dr. Lea thought that as signs of loss of compensation only appeared after the tumour had begun to grow rapidly (the cardiac mischief being old-standing), the heart muscle was probably healthy, a view supported by the great improvement after removal of the tumour. Dr. Lea also read notes of a case of *infected myoma of the uterus* with severe toxæmia treated by abdominal hysterectomy. The patient was married, sterile, 44 years of age. When first seen she had some elevation of temperature, pulse-rate of 110 to 130, sickness, diarrhœa and an offensive discharge from the uterus. For ten years there had been menorrhagia. Operation was delayed for a fortnight to allow of improvement in the toxæmic symptoms taking place. Then total abdominal hysterectomy was carried out in the usual way, and uneventful recovery took place. The tumour measured 2½ inches in diameter, and projected into the cavity of the uterus; its surface was necrosed. The appendages were healthy. Microscopically, the appearances suggested sarcoma, but Dr. Lea remarked that it was extremely difficult to distinguish between an inflamed myoma and a sarcoma.

Dr. R. FAVELL (Sheffield) showed a *fibromyoma uteri* undergoing necrotic changes. It had been removed by panhysterectomy from a barren married woman, aged 56, who gave a history of menorrhagia thirteen years previously. During the six months preceding operation there had been an offensive discharge, and also elevation of temperature, varying from 100° to 102°.

Dr. PERCIVAL BARBER (Sheffield) showed a *cystic fibroid* removed from a patient, aged 38. She underwent oöphorectomy in 1899, and the left pedicle was then sewn to the anterior abdominal wall. Four years later the growth of the fibroid, associated with menorrhagia, necessitated abdominal hysterectomy, and at this second operation no trace of any adhesion between uterus and abdominal parietes could be found. Dr. Barber remarked that the points of interest were the failure of oöphorectomy to check the hæmorrhage and the absence of adhesion after ventrifixation.

In the ensuing discussion on these cases and specimens, Dr. DONALD thought there ought to be no difficulty in distinguishing between a sarcoma and an infected myoma. The tendency in sarcomatous degeneration of a fibroid was for the bleeding to become more and more profuse and intermittent. The PRESIDENT thought that the necrotic changes in Dr. Lea's specimen might be due to apparent sarcomatous change, but he did not think it possible that a fibroid could become converted into a sarcoma. Sufficient evidence did not exist to justify any statement of risk from malignant changes. Drs. GEMMELL and LLOYD ROBERTS having spoken, Drs. LEA and FAVELL briefly replied.

Dr. GEMMELL (Liverpool) read notes of a case of AMENORRHŒA ASSOCIATED WITH SERIOUS EYE SYMPTOMS. The patient was a schoolgirl, aged 16, in whose right eye severe hæmorrhage occurred, leading to total blindness and absence of fundal reflex; some hæmorrhage also occurred into the left eye leading to slight interference with vision. He commented upon the frequent occurrence of amenorrhœa in young ladies going off to boarding schools, more particularly when going to the Continent; but had never before known such serious effects to be produced. In this case there was an absence of all the usual causes of amenorrhœa, no abnormal condition of the blood, and no renal disorder. The only possible causes were change from home to boarding school life, hard mental work and want of exercise. Gynæcological literature did not refer to eye changes associated with menstruation or menstrual irregularities; whereas, every work on ophthalmic surgery pointed out the intimate reflex relationship between the female reproductive system, menstruation and the eye. The prognosis from the ophthalmic point of view was grave, and much depended upon the re-establishment of the menstrual function; otherwise hæmorrhages were apt to recur at the periods. These hæmorrhages might be a form of vicarious menstruation, or they might result from reflex uterine irritation and vasomotor changes associated with the absorption of toxins from the uterus.

Dr. ARTHUR WALLACE mentioned a case somewhat similar to Dr. Gemmell's, in which shortly after the condition of amenorrhœa had set in, complete and permanent blindness from atrophic retinitis occurred.

Drs. J. W. MARTIN, DONALD and the PRESIDENT having spoken, Dr. GEMMELL replied.

Dr. PERCIVAL E. BARBER (Sheffield) related a case of ENCYSTED PERIMETRITIS. *Vide* p. 347.

The case was discussed by Drs. LLOYD ROBERTS, DONALD, ARNOLD LEA and the PRESIDENT.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Meeting, March 9th, 1904, the President, DR. J. NIGEL STARK, *in the Chair.*

Dr. G. BALFOUR MARSHALL read a paper on INTRA-PERITONEAL HÆMORRHAGE AND HÆMATOCELE ARISING FROM TUBAL ABORTION OR RUPTURE, with illustrative cases. Dr. Marshall emphasised the necessity for early diagnosis in cases of tubal abortion, and more especially in cases of tubal rupture. In some cases the patient had the ordinary subjective signs of an early uterine pregnancy, and was unaware that anything was wrong until seized with sudden pain in the lower abdomen and symptoms of

internal hæmorrhage. The usual symptoms in more than half of all cases of tubal gestation were irregular uterine hæmorrhage, with cramp-like pains in one or other iliac region. Tubal abortion was much commoner than tubal rupture.

Cause of Tubal Abortion. The glandless tubal mucosa hypertrophied only slightly, and did not form a decidua such as was found in the uterus. The trophoblast and chorionic villi of the growing ovum readily perforated this thin layer and opened into the enlarged tubal vessels. This gave rise to hæmorrhage which partially or completely separated the ovum and ended, in the majority of cases, in an incomplete or complete tubal abortion between the fourth and twelfth weeks.

Cause of Tubal Rupture. The tube might rupture spontaneously as the result of perforation of the wall by the growing villi, from sudden distension by hæmorrhage, or from violence.

Formation of Hæmatocele. Schröder explained the formation of hæmatocele in two ways—(1) the pelvic cavity had previously been shut off from above by adhesions; (2) a quantity of blood escaped into Douglas' pouch, irritated the peritoneum and formed adhesions among the bowels above. This latter was the most generally accepted explanation.

The symptoms of intra-peritoneal hæmorrhage, free and encysted, were then enumerated. If expectant treatment was adopted the mass gradually became hard, nodular and less sensitive; it might take months to absorb, during which the patient was an invalid. The uterus ultimately became densely adherent to the rectum and posterior pelvic wall.

Treatment. It was generally accepted that an ectopic pregnancy as soon as it was diagnosed, should be promptly removed. There was, however, a difference of opinion as to whether expectant or operative treatment should be adopted when a hæmatocele had formed. If seen at the onset of intra-peritoneal hæmorrhage, operation should be performed at once, as all cases could not be expected to end in hæmatocele. If the hæmatocele was large it should be operated on whether seen recently or some weeks later, as to leave such a case to nature was to condemn the patient to a very prolonged period of invalidism with the formation of dense adhesions. If operation was performed it should be by abdominal section, as the field was by this means fully exposed. The affected tube or tubes, all blood clot and as much as possible of the fibrinous sac should be removed. Drainage, if necessary, was best carried out by the vagina.

ROYAL ACADEMY OF MEDICINE IN IRELAND, SECTION OF OBSTETRICS.

Meeting, Friday, March 11th, 1904, the President, PROF. A. J. SMITH, *in the Chair.*

Sir ARTHUR V. MACAN showed a most interesting series of eight plaster casts of fœtal heads, by Prof. E. Winternitz, of Tübingen, illustrating the changes in the child's head due to the several presentations; also an enlarged (six diameters) cast of the fœtal heart. He also demonstrated an obstetric phantom (Dr. Sellheim's), and a *papier maché* fœtal head, by Dr. Hugo Gloeckner. A "lay figure" of a fœtus designed by Dr. Ludwig Knapp and several plaster casts of deformed pelves were also shown.

Dr. A. Dempsey (Belfast) read a brief report of his operative work in the gynæcological wards of the Mater Hospital, Belfast, during the year 1903. There were 107 operations, 25 being intra-peritoneal with only one death. In cases of metritis and endometritis, he regarded curettage alone as not sufficient to cure all cases. He referred to the hot, dry air treatment, and apparatus introduced by Reitter, of Vienna, for ovarian and vague pelvic pain, and for the absorption of cellulitic exudates in the pelvis. He had found very satisfactory results from its use in both classes of cases. Temperatures of 120°C. to 130°C. could be obtained by it. This treatment was not applicable when any active inflammation was present. Among the laparotomies were 11 ovariotomies, 9 retro-peritoneal hysterectomies, two extra-uterine fœtations cases, both diagnosed before rupture, one case of gastric and intestinal adhesions, one appendicectomy, and one intra-peritoneal abscess drained through the abdominal wound.

Sir Arthur Macan, Dr. W. J. Smyly, Dr. Tweedy, and the President, having discussed the report, Dr. Dempsey replied.

Drs. Jellett and Earl read a paper on Sarcoma of the Vagina, and showed a specimen.

The meeting then adjourned.

REVIEWS OF RECENT BOOKS.

CHARLES WHITE, F.R.S., A GREAT PROVINCIAL SURGEON AND OBSTETRICIAN OF THE EIGHTEENTH CENTURY. An address delivered before the Medical Society of Manchester, October 7th, 1903, by Charles J. Cullingworth, M.D., F.R.C.P., etc. With notes and illustrations. London: Henry J. Glaisher, 1904.

Great men are profitable company, it has been observed, and Huxley once remarked that clever persons were plentiful, but it was not so easy to find a good one. Charles White was certainly great in his day, and no one who has studied his career can deny that he was good. This citizen of no mean city is justly and proudly remembered in Manchester, and three contemporary obstetricians of renown have taken pains that the medical world should not forget him. The late Sir William Priestley, when President of the Section of Obstetric Medicine at the Manchester meeting of the British Medical Association spoke of White's treatise on "The Nature and Cause of the Swelling of the Lower Extremities which sometimes happens in Lying-in Women" as "one of the first scientific attempts to unravel the pathology of the disease called phlegmasia dolens."

Dr. Cullingworth has devoted an entire address to the life and labours of the great Manchester doctor, and it is now published separately as a biography. The author notes that a third eminent obstetrician, Dr. Lloyd Roberts, has in recent years turned attention to White; and we must add that Mr. Whitehead, as a surgeon, has proclaimed in a public address White's surgical merits. Dr. Cullingworth admits that he has found much information of high value in Mr. Sutton's article on White in the *Dictionary of National Biography*, but as a literary work this book now under our consideration may be reckoned as entirely original. A fine portrait of Charles White is inserted as the frontispiece, with his autograph taken from a holograph letter now in the Library of the Obstetrical Society of London, addressed to Rigby, of Norwich, thanking him for the present of a new edition of the work on uterine hæmorrhage, for which Rigby was so celebrated. Besides three illustrations of buildings with which White was associated, Dr. Cullingworth publishes much new matter supplied by friends who had old drawings, and documents of value in their possession.

Charles White, born in 1728, died in 1813, and lived almost entirely in his birthplace, Manchester. He was the great-grandson of a Knight of the Shire for the County of Nottingham, a cavalier who lost his estate in the great Rebellion. This royalist, a victim of history, had a son who practised the law in Manchester, and died leaving a child aged six. This child became Dr. Thomas White, who practised physic in his father's city, and was the sire of Charles White. He, the subject of this biography, was the father of two doctors—Thomas, who worked with his father, and, like him, held several public appointments, and John Bradshaw White, who lived with his father, and was also medical officer in a Manchester hospital. Both sons died before their father. Charles White was not only the sire of doctors, he also trained them. Among his apprentices was Peter Holland, who practised after qualification at Knutsford; his son was the renowned Sir Henry Holland, father of Lord Knutsford. Charles White

was a lifelong friend of John Hunter, but Dr. Cullingworth shows that there is no evidence extant to prove that White was ever a pupil of that great surgeon. Fellow students they certainly were, as they together attended Dr. William Hunter's lectures in London; but Dr. Cullingworth points out that White had been long in practice in Manchester before the great Hunter was in a position to take pupils.

Thus few doctors have been so thoroughly medical in all their associations—domestic and public. Turning to his original and scientific work, we must note that he was one of the earliest authorities in anthropometry, Camper, Blumenbach and Hunter preceding him, whilst in our own days Barnard Davies, a practitioner in the Potteries, and Flower, at first a hospital surgeon, greatly developed this branch of science. Let it be noted that White's purely scientific work did not spoil his practice, just as, according to some observations made a few years since at the Obstetrical Society of London, Sir W. Priestley's monograph on Sedges did not prevent him from becoming a most popular "accoucheur" in high circles. White's surgical work was of a high class, but we need not dwell upon it; its records are to be found in the list of White's published writings at the end of this volume. Another list is appended of laboriously collected relics exhibited by Dr. Cullingworth when this biography was delivered in its original form as an address. Amongst the relics was the indenture of apprenticeship of Sir Henry Holland's father.

It is as an obstetrician that White interests us most, and Dr. Cullingworth rightly devotes a large proportion of his pages to his hero's obstetric labours. The practice of midwifery was almost entirely in the hands of extremely ignorant women during the first half of the eighteenth century, and Charles White, during his long experience amongst the parish poor of his city, entered into what Dr. Cullingworth rightly terms "a beneficent crusade, of which the results soon became manifest, and although there is even yet vast room for improvement, the women of this century are still reaping the benefit of the revolution he was largely instrumental in effecting." When we read in White's own words a description of the lying-in chamber of the period in a humble quarter of the city, it seems wonderful that the Manchester poor did not become extinct. And in field and town elsewhere, especially in the Metropolis, midwifery was just as faulty. White, in consequence of his experience, wrote his "Management of Pregnant and Lying-in Women." Let us all—the elders as well as the younger—mark that this valuable treatise was published after twenty years' experience of midwifery in all ranks of life. There are a great many more medical works written in these days, but the proportion of elder to younger authors is far smaller than in the eighteenth century. White's "Management" first appeared in 1773, and passed through several editions; the first was reprinted, in the year of its appearance, in America, and French and German translations were published later. White summarised in his second edition (1777) what he claimed as "the most material improvements in the management of pregnancy and child-bed. They were (1) the use of a cold or "temperate" bath during pregnancy and lactation; (2) allowing the shoulders of the child to be expelled by the labour pains, instead of pulling at the head directly it is born; (3) allowing the circulation between the child and placenta to cease spontaneously, instead of tying the cord as soon as the child is delivered; all these innovations have long ago been accepted. White's fourth "material improvement" was placing the woman in an upright position as early after delivery and as frequently as possible. Dr. Cullingworth shows that White was

applying to midwifery practice the great antiseptic principle of drainage when he enforced this postural treatment. White noted in his standard work how a rapid pulse in fever after labour meant the absorption of putrid matter, just as was seen in many purely surgical conditions, a homology hardly recognised in his time. The upright posture prevents the stagnation of the lochia and promotes uterine contraction. Still White seems to have pushed this practice to an extreme. The freedom of his own cases from puerperal sepsis was phenomenal for his day. The care which he took in insisting on open windows and freedom from dust and dirt in the lying-in chamber showed that he was before his time. Stuffiness and defective ventilation were universal in middle-class homes in England for many years after the death of Charles White. But his work bore good fruit, and we must congratulate Dr. Cullingworth on his life of a man who was a light to lighten the hygienic darkness of that interesting age the eighteenth century, more famed for wit and intellectual development than for any form of literal or metaphorical purity.

DIE ERRICHTUNG GEBURTSHILFLICHER POLIKLINIKEN AN HEBAMMENSCHULEN. By Fritz Frank, Director of the Provincial Institution for Midwives at Cologne. Pp. 46. Berlin: S. Karger, 1904. Price 1 mark.

In this pamphlet the author strongly advocates the utilisation of the polyclinic as a means whereby pupil midwives can be most efficiently trained. The establishment of such a polyclinic is costly, but it is clear that under the direction of a capable chief and a competent committee very excellent results may be achieved. The nurses visit their patients during pregnancy and educate them in regard to the importance of cleanliness. Simple printed rules, under the heading, "For the Prevention of Fever," are left at each house visited, and in this way some idea of the value of antiseptics is in time spread abroad among the people. Indirectly the polyclinic system has a good social effect, and advances the problem of the better housing of the poor. It also makes it possible for the poorest woman to receive immediate attention at her confinements; hence it helps to correct the wrong impression among the lower classes that the doctor is not at home when sent for. Frank concludes by giving some tables showing the results of the polyclinic under his charge at Cologne. From January 1st, 1895, to January 1st, 1903, 4,354 women were delivered. Of these 45 had twins, 2 had triplets, and 111 aborted; 4,403 children in all were born. Then follow tables which indicate (1) the number of the labour; (2) the ages of the patients; (3) the time of day the children were born; (4) whether the children were premature or not; (5) whether they were still-born or dead; and (6) the position of the fœtus. Short sections are devoted to a consideration of the diseases of the mothers, the causes of maternal death, and the diseases of the children. The maternal mortality was exceedingly low. There were 4,354 cases delivered from 1895 to 1903, and another 115 from 1892 to 1895; thus in all 4,469 labours were attended. Among this number seven deaths occurred, and in none of them could the least blame be attached to the nurses. The author must be congratulated on this admirable record of midwifery work; such statistics undoubtedly go a long way to substantiate his claim that the polyclinic is specially adapted for the efficient training of midwives.

A Manual of Obstetrics. By A. F. A. King, A.M., M.D., Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the Columbian University, Washington, D.C., and in the University of Vermont. Ninth edition; pp. 622. London: Henry Kimpton. Price 12s. 6d. net.

This manual appears to have attained some popularity, judging by the fact that this is its ninth edition, but a study of it only makes one wonder why it has attained to this dignity. The illustrations are nearly all old friends gathered together from the well-known works of the past generation, and many of them quite out of date. This applies especially to those of instruments, which appear more fitted for repose in a glass case than for use in a modern lying-in room. The general scope of the work is professedly elementary, but by no exercise of generosity can it be called scientific. The implantation of the ovum and the growth of the decidua are described in the light of the knowledge of fifty years ago, and are illustrated by diagrams "after Dalton," which have now only a historic interest. The extraordinary statement appears on p. 116 that "menstruation is suppressed during pregnancy, because what would have been *menstrual* blood in the absence of impregnation is now appropriated to the development of the ovum and reproductive organs." And equally curious is the explanation given of the reason why the lying-in woman requires little food during the first few days of the puerperium, viz., that she is absorbing nutriment from the tissues of the involuting uterus. The chapter on puerperal sepsis, which has been specially revised for this edition, is more nearly up-to-date than any other part of the book; but there is nothing on the modern view of the causation of eclampsia, and accidental hæmorrhage is dismissed in a little over a page. In the practical part every now and then the reader is startled by some extraordinary and unexpected statement. For example, under deficient milk-flow we find that "of all milk-producing foods the most directly efficacious is *crabs*, whether soft or hard-shelled. Oysters, clams, lobsters and nearly all kinds of shell-fish are also good, care being taken to avoid any which, owing to idiosyncracy on the part of the woman, disagree with her." The attendant is advised to remove the placenta by hand when it is lying in the vagina—the very time when expression from above is simplest—and no mention is made of de Ribes' bag in the treatment of placenta prævia.

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